

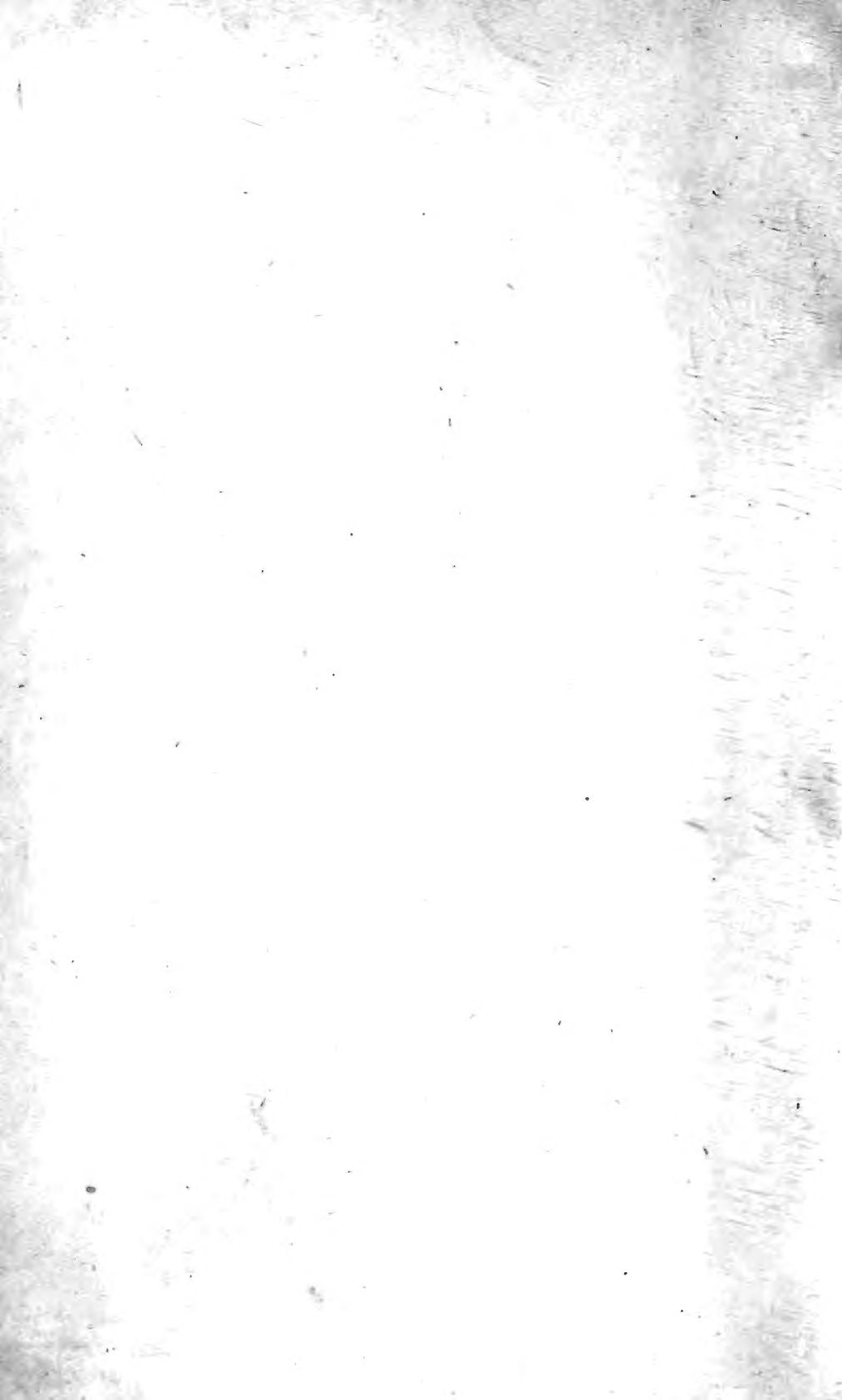
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(OR TWENTY-FIFTH FROM THE COMMENCEMENT.)



LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.

M.DCCC.LXVII.

O Nature! by impassion'd hearts alone
Thy genuine charms are felt; the vulgar mind
Sees but the shadow of a power unknown:
Thy loftier beauties beam not to the blind
And sensual throng, to grovelling hopes resign'd:
But they who high and lofty thoughts inspire,
Adore thee, in celestial glory shrined,
In that diviner fane, where Love's pure fire
Burns bright, and Genius tunes his loud immortal lyre.

PRINGLE.

If thou art worn and hard beset
With sorrows that thou wouldst forget,
If thou wouldst read a lesson that will keep
Thy heart from fainting and thy soul from sleep,
Go to the woods and hills! No tears
Dim the sweet look that Nature wears.

LONGFELLOW.

The leaf-tongues of the forest,
The flower-lips of the sod,
The happy birds that hymn
Their rapture in the ear of God.
The summer wind that bringeth
Music over land and sea,
Have each a voice that singeth
This sweet song of songs to me.—
“The world is full of beauty,
Like other worlds above,
And if we do our duty,
It might be full of love.”

MASSEY.

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The Birds of Shakespeare. By J. E. HARTING, F.Z.S.

(Continued from S. S. 264.)

The following line from 'King Lear' would seem to imply the poet's impression that the wren is polygamous:

"Die for adultery! no, the *wren* goes to 't."

King Lear, Act iv. Scene 6.

But, so far as we are aware, the observations of naturalists tend to prove the contrary.

"The pretty *wrens* of Tarsus will fly hence,
And open this to Pericles."

Pericles, Act iv. Scene 4.

"Came he right now to sing a raven's note,
Whose dismal tune bereft my vital powers;
And thinks he that the chirping of a *wren*,
By crying comfort from a hollow breast,
Can chase away the first-conceived sound?"

Henry VI., Part II. Act iii. Scene 2.

This passage has been before explained under the head of "Raven."
(See Zool. S. S. 468).

CUCKOO (*Cuculus canorus*).

"The plain song *cuckoo* gray,
Whose note full many a man doth mark,
And dares not answer nay:

For indeed who would set his wish to so foolish a bird? who would give a bird the lie, though he cry 'cuckoo' never so?"—*Midsummer Night's Dream*, Act iii. Scene 1.

"So when he had occasion to be seen,
He was but as the *cuckoo* is in June,
Heard, not regarded."

Henry IV., Part I. Act iii. Scene 2.

For by this time the cuckoo has been in song for a month, and is therefore less regarded than upon its first arrival in April, when it is listened to as the harbinger of spring.

In the same Play, Worcester, addressing the King, says :

“ And being fed by us, you used us so
As that ungentle gull the *cuckoo's* bird
Useth the sparrow ; did oppress our nest,
Grew by our feeding to so great a bulk
That even our love durst not come near your sight,
For fear of swallowing.” *Id.*, Act v. Scene 1.

Allusion is thus made to the popular belief that the cuckoo, after being hatched and fed by the hedge sparrow, as soon as it is sufficiently strong, turns out the young of its foster parent.

The word “gull” is usually applied to the person “gulled,” beguiled. Here it must either mean the “guller” or it must have a special application to the voracity of the cuckoo, as the sea-gull is supposed to be so called from ‘*gulo*’ ‘*gulosus*.’

Tooke holds that gull, guile, wile, and guilt, are all from the Anglo-Saxon ‘*wiglian*,’ ‘*gewiglian*,’ that by which any one is deceived.

The “fear of swallowing” expressed in the last quotation was not altogether groundless, if we are to believe the following :

“ The hedge sparrow fed the *cuckoo* so long
That it had its head bit off by its young.”
King Lear, Act i. Scene 4.

Mr. Guest (Phil. Pro. i. 280) gives a different reading of this passage, and observes, that “in the dialects of the north-western counties, formerly *it* was sometimes used for *its*, and so in ‘*King Lear*’ we have

‘ The hedge sparrow fed the cuckoo so long,
That *it* had *it* head bit off by *it* young.’

that is, that *it has had its head*, not that *it had its head*, as the modern Editors give the passage, after the Second Folio. So likewise, long before *its* was generally received, we have *it self* commonly printed in two words, evidently under the impression that *it* was a possessive of the same syntactical force with the pronouns in *my self*, *your self*, *her self*.* So in ‘*Timon of Athens*,’ we read :

* See ‘*The English of Shakspeare*,’ &c., by George Craik.

'The public body * * *
 * * * feeling in itself
 A lack of Timon's aid hath sense withal
 Of *it* own fall.'

Act v. Scene 1.

and in 'Winter's Tale':

" * * to *it* own protection."

Act ii. Scene 3.

And,

"The innocent milke in *it* most innocent mouth."

Id., Act iii. Scene 2.

And now "will you hear the dialogue that the two learned men have compiled in praise of the owl and the *cuckoo*? This side is Hiems, Winter; this Ver, the Spring; the one maintained by the owl, the other by the *cuckoo*. Ver begin;

I

"*Spring*. When daisies pied* and violets blue,
 And lady smocks all silver white,
 And cuckoo buds of yellow hue,
 Do paint the meadows with delight;
 The cuckoo then on every tree
 Mocks married men, for thus sings he,
Cuckoo,
Cuckoo, cuckoo, oh word of fear
 Unpleasing to a married ear.

II.

When shepherds pipe on oaten straws
 And merry larks are ploughmen's clocks;
 When turtles tread and rooks and daws
 And maidens bleach their summer smocks;
 The *cuckoo* then on every tree
 Mocks married men, for thus sings he,
Cuckoo,
Cuckoo, cuckoo, oh word of fear
 Unpleasing to a married ear."

In the old copies the four first lines of the first stanza are arranged in couplets, and run thus:

* *Pied* means parti-coloured, of different hues. Thus in the 'Merchant of Venice':

"That all the eanlings which were streaked and *pied*."

And in the 'Tempest,' Caliban says, "What a *pied* ninny's this," alluding to the parti-coloured dress which Trinculo, as a jester, wore.

“When daisies pied and violets blue,
And cuckoo buds of yellow hue,
And lady-smocks all silver white
Do paint the meadows with delight.”

But as in all the other stanzas the rhymes are alternate, this was most probably an error of the compositor. The transposition now generally adopted was first made by Theobald.

“Take heed ere summer comes or cuckoo birds do sing.”

Merry Wives of Windsor, Act ii. Scene 1.

Apropos of cuckoo songs, the following is considered to be the earliest ballad in the English language now extant. “Its date is about the latter years of the reign of Henry III., and it affords a curious example of the alterations which our tongue has undergone since that time; whilst the descriptions, which breathe of rural sights and sounds, show that nature has suffered no change.” For the benefit of those who are not antiquarians a translation is annexed.

“Sumer is icumen in,	Summer is come in,
Lhudè sing cuccu;	Loud sings the cuckoo;
Groweth sed and bloweth med,	The seed groweth, and the mead bloweth
And springth the wdè nu,	And the wood shoots new.
Sing cuccu.	Sing cuckoo
Awe beteth after lamb,	The ewe bleats after the lamb
Lhouth after calvè cu,	The cow lows after the calf,
Bulluc sterteth,	The bullock starts
Buckè verteth,	The buck verts (goes to harbour in the fern)
Merie sing cuccu:	Merrily sings the cuckoo;
Cuccu, cuccu;	Cuckoo, cuckoo;
Wel singes thu cuccu,	Well singest thou cuckoo,
Ne swik thu naver nu.”	Mayest thou never cease.

The fact of the cuckoo building no nest, but making use of the nest of other birds, appears to have been long known. In ‘Antony and Cleopatra’ we read:

“Thou dost o’ercount me of my father’s house,
But since the cuckoo builds not for himself,
Remain in’t as thou may’st.”

Act ii. Scene 6.

“He knows me as the blind man knows the cuckoo, by the bad voice.”

Merchant of Venice, Act v. Scene 1.

“For I the ballad will repeat
Which men full true will find,
Your marriage comes by destiny,
Your cuckoo sings by kind.”

All’s Well that Ends Well, Act i. Scene 3.

A new version of an old proverb. So, in 'Grange's Garden,' 4to, 1577,

"Content yourself as well as I,
Let reason rule your minde,
As cuckoldes come by destinie,
So *cuckowes* sing by kinde."

KINGFISHER (*Alcedo ispida*).

"It was formerly believed that during the time the halcyon or kingfisher was engaged in hatching her eggs, the water, in kindness to her, remained so smooth and calm that the mariner might venture on the sea with the happy certainty of not being exposed to storms or tempests; this period was therefore called by Pliny and Aristotle 'the halcyon days.'"

"Expect St. Martin's summer, *halcyon* days."

Henry VI., Part I.

It was also supposed that the dead bird, carefully balanced and suspended by a single thread, would always turn its beak towards that point of the compass from which the wind blew.

Kent, in 'King Lear,' speaks of rogues who

"Turn their *halcyon* beaks
With every gale and vary of their masters."

And after Shakespeare, Marlowe, in his 'Jew of Malta,' says:

"But how now stands the wind?
Into what corner peers my *halcyon's* bill?"

SWALLOW (*Hirundo rustica*).

"The *swallow* follows not summer more willingly than we your lordship, nor more willingly leaves winter, such summer birds are men."

Timon of Athens, Act iii. Scene 6.

"*Swallows* have built
In Cleopatra's sails their nests; the augurs
Say, they know not, they cannot tell, look grimly,
And dare not speak their knowledge."

Antony and Cleopatra, Act iv. Scene 10.

"And I have horse will follow where the game
Makes way and run like *swallows* on the plain."

Titus Andronicus, Act ii. Scene 2.

Those who have watched the swallows upon a dull day, skimming low along the ground, and seeming almost to touch it, although

flying with speed as undiminished as if high in air, will readily see the aptness of this simile. Again,

“As swift as *swallow* flies.

Id. Act iv. Scene 2.

It is difficult to calculate or limit the speed which can be produced by the effort of a wing's vibration. We may nevertheless ascertain with tolerable accuracy the rate of a bird's flight as follows:—If we note the number of seconds which are occupied by a bird in passing between two fixed points in its line of flight, and measure the distance between these points, we resolve the question to a simple “rule of three” sum, inasmuch as knowing the number of yards flown in a certain number of seconds we can ascertain the distance traversed in 3600 seconds, or an hour, and thus obtain the rate of speed per hour, supposing, of course, the speed to be uniform.

In this way the flight of the common swallow has been computed at 90 miles, while that of the swift has been conjectured to be nearly 180 miles per hour.

“True hope is swift and flies with *swallow's* wings.”

Richard III., Act v. Scene 2.

The swallow, although one of the earliest, is not always the first of our spring ornaments to appear. There are

“Daffodils

That come before the *swallow* dares, and take
The winds of March with beauty.”

Winter's Tale, Act iv. Scene 3.

MARTIN (*Hirundo urbica*).

“This guest of summer,
The temple-haunting *martlet* does approve,
By his lov'd mansionry, that the heaven's breath
Smells wooingly here; no jutting, frieze,
Buttress, nor coigne of vantage but this bird
Hath made his pendant bed and procreant cradle.
Where they most breed and haunt I have observed
The air is delicate.”

Macbeth, Act i. Scene 6.

Sir Joshua Reynolds was struck with the beauty of this brief colloquy before the Castle of Macbeth, and he observes on it: “This

short dialogue between Duncan and Banquo, while they are approaching the gates of Macbeth's castle, has always appeared to me a striking instance of what, in painting, is termed *repose*. Their conversation very naturally turns upon the beauties of its situation and the pleasantness of the air; and Banquo, observing the martlets' nests in every recess of the cornice, remarks that where those birds most breed and haunt the air is delicate. The subject of this quiet and easy conversation gives that repose so necessary to the mind after the tumultuous bustle of the preceding scenes, and perfectly contrasts the scene of horror that immediately succeeds."

" but like the *martlet*
Builds in the weather on the outward wall,
Even in the force and road of casualty."

Merchant of Venice, Act ii. Scene 9.

PIGEON (*Columba livia*).*

"O, ten times faster Venus' *pigeons* fly
To seal love's bonds new made, than they are wont
To keep obliged faith unforfeited."

Merchant of Venice, Act ii. Scene 6.

"Enter a Clown with a basket and two pigeons.

"News, news from heaven! Marcus the post is come.
Sirrah, what tidings? have you any letters?"

Titus Andronicus, Act iv. Scene 3.

The practice of using pigeons as letter-carriers, here alluded to by Shakespeare, is of very ancient date. The old historian Diodorus Siculus informs us that above two thousand years ago they were employed for this purpose; and about five hundred years since relays of carrier pigeons formed part of a telegraphic system, adopted by the Turks. "Regular chains of posts were established, consisting of high towers between thirty and forty miles asunder, provided with pigeons, and sentinels stood there constantly on the watch, to secure the intelligence communicated by the birds as they arrived, and to pass it

* No particular species being referred to by Shakespeare, we give the scientific name of that from which our domestic pigeons are believed to be descended.

on by means of others. The note was written on a thin slip of paper, enclosed in a very small gold box, almost as thin as the paper itself, suspended to the neck of the bird; the hour of arrival and departure were marked at each successive tower, and for greater security a duplicate was always despatched two hours after the first. The despatches were, however, not always enclosed in gold, but merely in paper, in which case, to prevent the letters being defaced by damp, the legs of the pigeon were first bathed in vinegar, with a view to keep them cool, so that they might not settle to drink, or wash themselves on the way, which in that hot climate they were often doing."

Formerly it was not an uncommon thing to send a pair of doves or pigeons as a present.

"I have brought you a letter and a couple of *pigeons* here."

Titus Andronicus, Act iv. Scene 4.

Justice Shallow, in ordering dinner showed his appreciation of *pigeons* as well as of other good cheer. He says :

"Some *pigeons*, Davy, a couple of short-legged hens; a joint of mutton; and any pretty little tiny kickshaws; tell William cook."

Henry IV., Part I., Act v. Scene 2.

The attachment of pigeons for their young is well known :

"As *pigeons* feed their young."

As You Like It, Act i. Scene 2.

"And as *pigeons* bill so wedlock would be nibbling."

Id., Act iii. Scene 3.

"This fellow pecks up wit as *pigeons* peas."

Love's Labour Lost, Act v. Scene 1.

J. E. HARTING.

Kingsbury, Middlesex.

(To be continued).

Ornithological Notes from Shetland. By H. L. SAXBY, M.D.

(Continued from Zool. S. S. 479.)

JUNE, 1866.

Whitetailed Eagle.—I have just been informed that whitetailed eagles hatched very early this month.

Hooded Crow.—After a gale, hooded crows may be seen upon the shores in large numbers, busily searching among the drifted weed. Sometimes they carry a large root some distance inland, and, resting it in a quiet spot, spend half an hour in picking out the shells which are concealed among the crevices.

Twite.—Twites are doing great damage in the gardens: this is partly owing to the dryness of the season, for at present scarcely any of their favourite food, the seed-leaves of cruciferous plants, has appeared above ground except in cultivated spots.

Land Rail.—The first land rails were heard on the 3rd of June. (Wind S.E.)

Swallow.—A few swallows also appeared on the 3rd, and remained with us about a week.

Yellowhammer.—On the 4th (wind S.E.) a yellowhammer visited the garden.

Snipe.—I am not sure when the first snipes' eggs were found, but on the 3rd I met with many of the birds in the marshes where they breed. It is at this season that their peculiar drumming or bleating sound is most constantly heard, and there seems to be good reason for the belief that it is produced by the male alone: a snipe which I shot some years ago almost in the very act, and I never had the cruel curiosity to kill another in the breeding season, was certainly a male. Soon after I commenced walking through the marshes several birds were wheeling about in the air, some at a great height, and for perhaps the hundredth time I sat down to watch them, as they circled, in all directions, now high, now low, but each one evidently preferring to keep above its own particular portion of ground, where, judging from former experience, I felt sure the nest must be. After a considerable height had been attained, a sudden descent followed, during which the bleating was heard and the wings were kept rigidly extended, or perhaps vibrating in a manner so slight as to be imperceptible: this lasted for three or four seconds; then the bird rose for about eight seconds, when another descent was made, and after the same move-

ments had been repeated with most astonishing regularity for some fifteen or twenty minutes, a sloping flight was directed towards the ground, and throwing the wings above the back, at the same time uttering a rapid "chucking" cry, it dropped out of sight among the grass. There can be very little doubt that the bleating sound is made by the wings, for it is only heard while the bird is descending with them extended; never at any other time. I have many times produced a sound of much the same kind by cutting downwards through the air with the outer edge of a large quill. A Shetland guide takes a singular pleasure in calling the traveller's attention to the "snip-pack's" supposed power of making its *voice* heard close at hand one moment and a hundred yards off the next, and never for a moment thinks of doubting that it is uttered while the bird is upon the ground in order to lead the intruder from its nest. More than one old sportsman of my acquaintance would rather suffer at the stake than renounce the same time-honoured belief, but for myself I can only assert that on hearing the sound in question my attempt to discover the bird producing it in the air above has never failed, except at night or in foggy weather.

Blacktailed Godwit.—The blacktailed godwit mentioned in my notes for last month (Zool. S. S. 477) was shot by me on the 4th of June: it was running upon a small patch of sand close to the sea, and allowed me to drift up in the boat until within about forty yards. Although so late in the season it had not completely acquired the fine red summer plumage. It was a female, and so very fat that I experienced great difficulty in skinning it without soiling the feathers. The stomach contained sand, small stones, pieces of shells and numerous skins of grubs.

Black Guillemot.—As late as the 7th of June I observed a party of seven black guillemots near Balta. More than two are very seldom seen together in June.

Sanderling.—On the evening of the 10th of June, after a smart breeze from S.S.W., I saw a small party of sanderlings feeding with some dunlins upon the flat ground left bare by the tide at the head of the voe. So far as I could ascertain they fed in silence until I was observed, when they commenced a warning "twit, twit," rising with the same cry if still further pressed. At two o'clock next morning (Monday) I went out and shot one, fearing that the fishermen would disturb them: it was in the beautiful reddish plumage peculiar to summer.

Peregrine Falcon.—On the 7th of June I received a specimen of the peregrine falcon, which had just been shot at Uyeasound: it was a male, apparently from last year, and had not quite completed the summer moult: both crop and stomach were quite empty.

Dunlin.—During the latter half of June I found several dunlins' nests upon the Hill of Colirdale, several hundred feet above the level of the sea, and at least a quarter of a mile from the nearest drop of fresh water. The nests were all placed among the heather, and consisted of nothing more than a deep cavity, slightly lined with pieces of moss and grass. One was completely hidden beneath an overhanging spray of heather, and would have escaped notice had not the bird flown out as I stepped over it. When a dunlin is near hatching, and is disturbed in this manner, she alights almost immediately, and runs trailing the wings and uttering a peculiar shrill cry; when the danger seems to be over she returns by running until within about twenty yards of the nest, and then, after pausing awhile and looking round upon all sides, flies the remaining distance. In the breeding season these birds have a singular habit of hovering at a considerable height above the ground, at the same time uttering a sort of gentle warbling.

JULY, 1866.

Twite.—Fresh eggs of the twite were found during the whole of this month.

Golden Plover.—Golden plovers began to assemble very early this season. I saw the first flock, numbering about forty individuals, on the 2nd of July.

Crossbill.—A number of crossbills visited us on the 4th of July, during a light N.E. wind. The greater number were birds of the year, in green and yellow plumage, and there were several in bright yellow or orange, but red ones were very scarce. They seemed to feed entirely upon Aphides, to procure which they would snap off a rolled-up elm leaf, fly with it to some convenient perch, and then, transferring it from the bill to one foot, pick them out at leisure.

Rednecked Phalarope.—On the 14th of July several well-fledged birds of this species were observed in company with some old ones, in a marsh, by Mr. Thomas Edmondston, jun. Two of the former, which he shot, are now in my possession. There can be but little doubt that they were bred there.

HENRY L. SAXBY.

Baltasound, Shetland, July 31, 1866.

Ornithological Notes from Beverley, East Yorkshire.

By W. W. BOULTON, Esq.

Cormorant.—1865. December 13. I received this day from Mr. Bailey, of Flamborough, a fine old female specimen of the cormorant. This bird is anything but common on our eastern coast, a few specimens only occurring each year, and these are chiefly immature birds.

Gray Phalarope.—December 30. A specimen of the gray phalarope was shot on the Humber bank yesterday: I obtained it for my collection, and on dissection it proved to be a male. This bird is occasionally met with along the east coast of Yorkshire, most of the local museums containing specimens: this season, however, *viz.* that of 1865—66, would seem to be unusually prolific in specimens of the species throughout the kingdom, judging from the numerous captures recorded in the 'Zoologist.' I have received a second specimen, shot near to Flamborough.

Mountain Finch.—Large numbers of this species have frequented the neighbourhood during the winter months: they may be found in flocks, often mixed up with linnets, &c., in the carrs of East Yorkshire: many, too, have been shot in orchards and gardens around the suburbs of Beverley.

Rock Pipit.—1866. January 26. Four specimens of this pipit were shot to-day by Mr. F. Boyes, of Beverley, at Flamborough. They are common along the east coast of Yorkshire, but I have never met with a specimen inland. Mr. Boyes saw many more besides those he shot.

Quail.—February 20. An immature male specimen of the quail was shot to-day by Mr. Ward, of Arram, near Beverley: it was shot near to the village of Arram. This is now a rare bird in East Yorkshire.

Tree Sparrow.—March 3. This species is by no means uncommon in our neighbourhood; tree sparrows are frequently met with both singly and in flocks. This day an old male tree sparrow was shot by Mr. B. Boyes, and several other specimens have been brought in for preservation.

Great Gray Shrike.—March 8. A male of this species was brought to me to-day by a sergeant of the Coldstream Guards, who had shot it amongst some hawthorn-bushes on Swine Moor, one of the common pastures of Beverley. The shrike, of either species, is now a rare bird

in the neighbourhood of Beverley: I have never had more than four or five specimens shot within several miles of the town.

Gannet.—April 23. A fine old male specimen of the gannet was sent to-day to Mr. R. Richardson, of Beverley, for preservation, by Mr. Boynton, of Alrome, near Bridlington. The gannet has occurred in larger numbers along our coast during the present year. Several have come under my own observation, in various stages of plumage.

Shore Lark.—April 6. I have to-day received from Mr. Bailey, of Flamborough, an old male specimen of this rare bird. It was shot a short time previously by Mr. Bailey, near to Flamborough: he mistook it for a variety of the blackheaded bunting, and sent it to me as such. Mr. Bailey also stated that it was one of a flock, and that had he known its value he could have secured more specimens. This is the only specimen of the shore lark I have met with shot on our east coast.

Gray Plover.—April 20. I received this day, in the flesh, a specimen of the gray plover, rapidly changing to the breeding plumage. On the 30th of May Mr. F. Boyes shot another, an adult male, in the perfect nuptial dress: both these birds were shot at Spurn, mouth of the Humber. It is very rarely that we obtain this bird in its breeding plumage in our neighbourhood. The change of plumage appears to be effected, in part, by a partial moult of new feathers, and in part by a gradual change of hue that takes place in the old feathers, which remain unmoulted.

Curious Freak of Nature.—On the 15th of March a hen carrier pigeon, in my own loft, appeared to be rather cramped in the left foot and leg: on that day she laid two eggs, both of them perfect, but one a little smaller than the other, and both rather thin-shelled: two days after she laid a third and perfect egg of the full size, and with a perfect shell; on this egg she sat the full time, and brought the chick within to maturity. This carrier hen has never since laid more than two eggs at one nesting, and has never been in any way cramped in leg or foot. This partial palsy of the limb was doubtless due to the pressure of the eggs upon the nerves which supply the muscles with motive power. I have frequently observed similar results in the case of short-faced tumblers, delicate in constitution and small in size, when the bird, from over obesity or actual want of power, has failed to expel the egg at the proper time: after a few days of care and rest the bird has generally regained the lost power in its legs. Since the above occurrence a Cochin China pullet of the present year (1866), in my

yard, dropped two eggs from her perch during the night, and laid a perfect egg, as usual, on the following day.

Ring Ouzel.—This bird visits East Yorkshire in company with the fieldfare: it is met with, as a rule, at those periods of the year when the fieldfare arrives and leaves us. On one occasion only have I known it breed near to Beverley, and in my collection is an egg taken from the nest in question. Several specimens of the ring ouzel were shot in the neighbourhood during the month of April: the last specimen brought in for preservation was shot on the 3rd of May; the last fieldfare I got was shot on the 24th of April. Since the arrival of the fieldfare again, in October, the ring ouzel has also reappeared: several have been seen and shot; the last specimen brought for preservation was shot on the 27th of October.

Pied Flycatcher.—I have never met with this species in this district of East Yorkshire until the present year. On the 3rd of May and two following days several specimens were shot by Mr. Bailey, of Flamborough, eight of which he sent to me: they were shot out of a large flock, and amongst them were birds of both sexes, mature and immature.

Bridled or Ringed Guillemot.—May 17. Mr. F. Boyes shot a ringed guillemot to-day at Flamborough Head: it was a female. I am convinced that this species is not by any means so rare as is generally supposed. I have obtained many specimens in both summer and winter plumage: its apparent scarcity I attribute rather to its close resemblance to *Uria troile* (with which species it has often been doubtless confounded) than to an actual rarity of the *Uria lachrymans*. In these days of advancing knowledge, science and research, I believe that many species hitherto believed to be scarce, from their close resemblance to other and distinct species, will be found after all not so rare as supposed: they have been overlooked and unobserved amongst their closely allied species, existing and even breeding with us, whilst their very being has been unsuspected and disbelieved.

Black Tern.—On one occasion only have I previously obtained this species in the mature plumage; they have been seen occasionally along the eastern coast, and reported to me, but rarely shot. On the 18th of May Mr. Bailey shot a mature male specimen off the Flamborough Head: it is now in my collection. I also possess an immature specimen shot at the same place and by the same gun. I once possessed a mature bird shot at Spurn, but afterwards exchanged it for another bird.

Whimbrel.—On the 18th of May a mature male of this species was shot on the canal bank, near the village of Leven, near Beverley: it was in company with two more birds of the same species, and probably was migrating towards its breeding haunts. The whimbrel is by no means a common bird here, although occasionally met with at Spurn and other favourite resorts of the Grallatores.

Swift.—May 22. Saw the first swift to-day. I have only seen four of the species during the year, which would seem to confirm my suggestions in preceding years, that swifts are gradually deserting the neighbourhood of Beverley.

Varieties.—A dun-coloured rook (immature), a dun-coloured swallow (*Hirundo rustica*), a white sparrow and a pied blackbird have come under my observation during the present year.

Turtle Dove.—June 11. A female of this species was sent for preservation to-day to Mr. R. Richardson, by Mr. Forge, farmer, of Leven. The bird occurs very sparingly in this neighbourhood; I have not had more than four or five examples during the last five years.

Parrot Crossbill.—August 4. I have this day received, in the flesh, the first specimen of the parrot crossbill I have known to be shot in this neighbourhood: it was shot by Mr. Bailey, of Flamborough, and on dissection proved to be a female. The larger bulk of the bird, when compared with the common species, the longer bill and more deeply-forked tail—all sufficiently indicated the rarer species.

Manx Shearwater.—I have received three specimens of this species shot on our east coast during the present summer. The first was shot by Mr. Bailey on the 4th of August.

Great Shearwater.—I have also received no less than three specimens of this rare bird, all in the dark or immature plumage: two were shot off Bridlington Quay and one off Flamborough. The first was sent me on the 6th of September and the last on the 19th. My collection contains another specimen shot last year off Flamborough Head, which was duly recorded by me in the 'Zoologist.'

Sandwich Tern.—On the 30th of August Mr. Bailey sent me a fine mature female specimen of this tern, shot off Flamborough Head. On the 19th of September Mr. Bailey sent me two more specimens of the same species, one a mature male, the other an immature female.

Sabine's Gull.—A most perfect specimen of this exquisite and rare gull was sent me, in the flesh, on the 5th of September, by Mr. T. Jones, of Bridlington Quay: it had been shot on Bridlington Bay. The bird is, I believe, in the plumage of the second year: it is a

female, and, judging from the ovary, must be mature. So few specimens of this rare and beautiful gull have been recorded that I am induced to append to my note of the capture a detailed account of the measurements, &c., taken by myself before the bird was skinned. Bill one inch and one-eighth long; black to within three-eighths of its extremity, *i. e.* about the angle, which is dark yellowish horn-colour, shaded with black; margins of both mandibles very sharp and fitting closely; palate and around the junctions of the mandibles at their base (*i. e.* the gape) brilliant orange-red. Irides dark blackish brown; margins of lids also dark and nearly black. Forehead leaden gray, interspersed with white, the latter colour predominating on either side between the eye and upper mandible. Nape leaden gray or ash-coloured, terminating in a partial ring or fringe of jet-black feathers, extending round nearly two-thirds of the neck. Below this ring of black the neck is dappled black and white for about an inch and a half. Between this point and the shoulder is white, as are also the breast, belly, under and upper tail-coverts. The back, scapulars and wing-coverts are ash-coloured, paler than on the nape, but far darker and more leaden in hue than in most of the other gulls. Scapulars on their lower margins are white, forming a white fringe when the wing is nearly closed, and a large triangular white centre when the wing is extended, the apex of this triangular patch of white being the wrist. Primaries: the first five have black shafts; the outer webs and nearly one half of the inner webs are black; the remainder of the inner webs to within half an inch of their tips white, each feather being also tipped with a white spangle, excepting the first primary, which is black to the tip; the second primary is spangled or tipped with white, these spangles increasing in size up to the fifth primary; the sixth primary has the shaft white, the outer webs black to about an inch and a half from its extremity; inner webs black about a quarter of an inch wide along the shaft for nearly two-thirds of its length; the remainder is white, excepting a small black spot on the outer web, about half an inch from the extremity of the feather. Wings, when closed, extend about an inch or rather more beyond the longest feathers of the tail. Legs and feet blackish gray on their outer surfaces, leaden gray or dusky on their inner surfaces, also on the webs. Claws black. Thigh feathered to within half an inch of the knee. Tail: as before remarked the upper and under tail-coverts are white, as well as all the feathers of which it is composed; these number twelve in all—*i. e.* those strictly denominated the tail-feathers; the outer three, on either side,

are longer than the rest, the third being half an inch longer than the fourth, the second three-sixteenths of an inch longer than the third, and the first or longest being five-sixteenths of an inch longer than the second, thus giving the tail a forked appearance, more resembling the tail of a tern than that of a gull. Total length thirteen inches; from wrist to end of first primary ten inches and a half.

Quail.—A female of this species was sent to Mr. R. Richardson for preservation, on the 8th of September, by Mr. J. Stephenson, who had shot it the day previously at Wolsey, about sixteen miles north of Beverley; he flushed another, but failed in bringing it to bag. On the 8th of October two more quails (both males) were sent, in the flesh, to Mr. Richardson for preservation; they had been shot at Cliff, about nine miles from Beverley.

Little Gull.—No less than six of these beautiful and rare gulls have been sent to me during the past summer: two of them were mature, the rest immature: they had all been shot off Flamborough and Bridlington Quay, between the 1st of September and the 5th of October.

Black Guillemot.—Together with the last adult female specimen of the little gull, above recorded, Mr. Bailey sent me a female of the black guillemot, in the flesh; it was an immature bird. This species is becoming extremely scarce on the coast of East Yorkshire, and my specimen is only the second that I have seen during the last five years.

Honey Buzzard.—Mr. Gray, the gamekeeper at Wawne, about four miles from Beverley, sent me, on the 5th of October, a remarkably fine specimen of the honey buzzard; it was an old male, and he had shot it on the same day near to the village of Wawne. In the rich bronze tinge of its brown plumage it approached very closely to the colouring of the golden eagle. This is the third specimen of the honey buzzard I have met with in our neighbourhood.

Common Crossbill.—October 16. Mr. J. Stephenson, of Beverley, obtained this day a fine male specimen of the crossbill, in the flesh: it was given him by a friend, and had been shot in the neighbourhood. Mr. Stephenson's specimen was shot out of a flock of ten.

Green Sandpiper.—On the 16th of October Mr. B. Boyes shot a female of this species on Figham, one of the common pastures of Beverley.

Siskin.—October 20. A female of the siskin was shot out of a flock of four, by Mr. Joseph Boyes, in Long Lane, near to the town of

Beverley. I saw it, in the flesh, at Mr. Richardson's, in whose hands it had been left for preservation. Mr. J. Boyes had also shot another, a male, which was so shattered as to unfit it for preservation. I never saw but two other specimens of the siskin near Beverley: it is one of our rare birds.

Shieldrake.—October 24. Mr. F. Boyes shot a young male shieldrake on the River Hull this afternoon. Although this species breeds about Spurn, &c., it is many years since a specimen has been shot on the River Hull.

Spotted Rail.—As in former years these birds have frequented the banks of the River Hull in no inconsiderable numbers, about a score having fallen victims to the wandering gunners of Beverley. The last specimen I have seen was shot on the 24th of October by Mr. J. Boyes.

Water Rail.—These birds have been numerous along the banks of the River Hull this year, many having been seen and shot.

W. W. BOULTON.

Beverley, Yorkshire, November 6, 1866.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from Zool. S. S. 295).

AUGUST—OCTOBER, 1866.

Wood Pigeon.—Small flocks of this species come daily from the upland woods and plantations, during the months of July, August and September, into the marshes, and may then invariably be found on the banks of those drains which are more or less influenced by the tides, and containing a considerable admixture of salt water. From having repeatedly watched these birds I know that they come for miles to drink this water, also to pick up small particles of saline matter from the water's edge. I have never, however, known them resort to these places at any other season of the year except during these three months. The contents of the stomachs of three of these birds which I shot during the first week in August are as follows:—

No. 1, killed August 4th, 11 A. M. The crop contained 116 grains of wheat; the stomach a mass of partly digested wheat, and small sharp, angular stones. No. 2, August 4th, 11.30 A. M. Crop 177

grains of wheat; stomach as before. No. 3, August 6th, 5.30 P. M. The crop empty; the stomach was crammed with partly digested wheat-grains and several small sharp stones.

Missel Thrush.—Have lately seen several flocks of these birds feeding in the low meadow grounds. They appear at this season to prefer these low-lying lands to the wooded portion of the district. The stomach of one shot on the 26th of September contained the remains of several large yellow caterpillars, and the wing-cases, &c., of a large species of beetle.

Common Redshank and Spotted Redshank.—Several flocks of the common species seen on the "flats" during September: on the 22nd I shot two out of a small flock: I came upon these birds suddenly in rounding a projecting portion of our shore, and their alarm notes on rising were particularly loud and shrill. They proved the young of the year, and were in high condition; in fact completely lined with fat. Amongst some birds lately received by me, shot on the Yorkshire coast, is one sent as a redshank, but which is really a very fine specimen of the spotted redshank in immature plumage: on comparing this bird with the common redshank the difference is at once apparent. The beak of *Totanus fuscus* is longer in proportion to the size of the bird than in *T. calidris*, being quite equal in length to the tarsus; the under mandible alone is red at the root; the legs of *T. fuscus* are of a yellowish brown colour: nearly the whole plumage of this bird is a dark smoky gray, finely spotted on the back with a lighter gray; throat white; a rather broad streak of brownish gray runs from the base of the bill to the eye; above it a white streak.

Lesser Blackbacked Gull.—Numerous during the autumn about the mouth of the Humber. I have on several occasions lately seen these gulls flying round in circles at an immense height over the Humber; from this height they will, on perceiving their fellows in the water, descend almost head foremost with wonderful swiftness and directness. When a number of these gulls are together their cries are particularly wild and trumpet-like, not unlike the clangour of wild geese, and very different from the hoarse bark or cough of the great blackbacked gull.

Swift.—Last seen on the 14th of August.

Knot.—September 10. First observed on the Humber flats.

Green Sandpiper.—October 9th. These birds have returned to their winter haunts, the small streams in this neighbourhood.

Wheatear.—October 11th. Last seen.

Golden Plover.—October 12th. A single bird seen passing over, and easily recognizable by its unwearied cry.

Hooded Crow.—October 8th to 13th. Considerable numbers arrived in this neighbourhood between these dates.

Goldcrested Wren.—October 13th to 17th, wind E. to S. E. Several of these minute and beautiful little creatures have been seen about the marsh district during the past week, doubtless on their autumnal migration southward. It is remarkable with what punctuality these little fellows arrive on our east coast about the middle of this month, generally preceding the woodcocks. Spurn Point is a great rendezvous for them, but numerous small flocks at this season are seen on the Lincolnshire side of the Humber. It is astonishing how so weak and small a bird succeeds in passing the many miles of stormy sea at this wild season of the year.

Chimney Swallow.—October 16th. Last seen.

Woodcock.—October 18th, wind E. and blowing hard. One shot this morning on the Humber embankment, evidently just arrived; it was an unusually small bird and in poor condition. This bird was a great contrast to a woodcock I got from nearly the same spot on the 26th, and which was in beautiful plumage and excessively fat, weighing $12\frac{3}{4}$ ounces.

Green Plover.—As usual these birds are in great force in the marshes. In the stomach of one shot in a turnip-field on the 4th of August I found a wire-worm, the remains of some small beetles, several small sharp stones, and a little vegetable fibre.

Redwing.—When out shooting to-day (October 29th) I observed in every turnip-field I crossed great numbers of redwings. There has evidently been a larger arrival of these birds in this neighbourhood, as I crossed nearly the same ground on the 27th without seeing any.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
October 30, 1866.

Letters on Ornithology. By HARRY BLAKE-KNOX, Esq.

LETTER IV.—*A Natural History of the Kittiwake Gull.*

(Continued from S. S. 522).

SYNOPSIS OF PLUMAGES.

First Plumage.—Head and neck incline to be white; ear-spot, a band at base of neck, another through wing and end of tail black;

back, scapulars and wing-coverts lead-gray, edged with white or brownish white. Bill black.

First Winter.—Bill black; mouth yellow. Head marked something like the adult. Feathers of back and scapulars as the adult. Rest as in first plumage.

Second Summer.—Bill lemon-colour and black; mouth orange. Head and neck as adult in winter; black band on neck lost. The black band still through the wing, though faded to brown. Tail still barred at end.

Second Winter.—Bill and mouth generally as the adult. Rest of the plumage as the adult (some difference in the primary quills), but the *bastard wing and often some of the primary coverts are marked with black*. Feet blackish.

Third Summer.—As the adult, but that the *bastard wing and often some of the primary coverts are marked with black; the feet are blackish olive or olive-brown*. The wing-quills are those of *second winter*, but very faded.

Third Winter.—As the adult. In the next summer, three years old, the bird breeds.

Adult in Summer.—Head, neck, tail-coverts, tail and all the under parts white. Back, scapulars, wing-coverts and *bastard wing* leaden-gray. Bill lemon-yellow; mouth, lips and orbits orange-red. Irides brown. *Feet brown, tinged with yellow or orange*. In winter the plumage is similar, but that the head and neck are marked and tinged with a blue leaden gray; the orbits become brown and the feet olive-brown.

ACCOUNT OF THE PLUMAGES.

No. 1. *Young in Down*.—The young at first are covered with a long silky white down, grayish about the back and flanks: these gray parts are margined with yellowish or pale yellow-red. The bill is leaden black; feet lead-colour, with the webs grayish.

No. 2. Link 1. Is a mixture of the down and the first plumage.

No. 3. *First Plumage*. August. (In collection.)—All the under surface is white. Forehead, crown of head, sides of the neck and tail-coverts white. Before and under the eye are many bristly black feathers; those round the eye white, except those in front black. Nape and upper part of neck white, each feather strongly tinted with lead-colour, particularly about the ear-spot, which is black. Towards the base of neck is a broad black band, some of the feathers edged

pale, but not encroaching on the throat; between this band and the shoulders the feathers are white. The back and shoulders are leaden gray, faintly edged with white; the tertials (scapulars) of the same colour, edged with brown or brownish white; the large tertials are edged with white; those of the wing-coverts, the colour of the back, are edged with white: beginning in the elbow-feathers, running through the secondary coverts, usurping the margin behind the carpal joint, onwards into the alula or bastard wing, through the primary coverts and into the primary quills, runs a black band. Many of the secondary coverts about the margin of the wing are also clouded with black. The elbow-feathers are white on their inner web, pale lead-colour on the outer, in which is a large black semi-linear spot ending abruptly against the shaft. The secondary quills are white, tinged with lead-colour on the outer web. Tail white, with a black band at tip; the first quill is sometimes all white, sometimes with a spot of white on the inner web. Feet black. Bill black. Orbits black. Mouth fleshy yellow.

Type of the Primary Quills.—Shafts of the first four blackish smoke-colour; ends of both filaments and all the lesser filaments black; the greater filaments black, broadly edged with white, the white increasing in quantity and usurping more of the filament and end successively. *Fifth primary.*—Shaft smoke-colour, end of quill black, tip white; on the lesser web a patch of lead-colour gray extends for two or three inches from the black end till it meets the black basal portion of the web; in its upper part this patch is edged with black, otherwise it runs to the edge of the web; the greater web, except its black end, is white, tinged along the upper part of shaft with lead-colour; along the basal half of shaft is a dark band of varying width. *Sixth primary.*—End black, tip white, shaft smoke-colour; the lesser web is lead-colour, except along the basal portion of the shaft black; greater web whitish. The rest have the shafts more or less of a smoky white; the greater web and the ends white; the lesser filaments gray. This type varies but slightly, except in the extent of the colours; the same quill in the respective wings of a bird may thus differ.

No. 4. Link 2. *First Autumn Moult.*—Begins in September and October, is generally finished in the latter; it interferes only with the head, neck, throat, back, scapulars and some of the under parts. The wing-coverts, quills and tail do not change. Before this moult takes place the feathers of the head and neck have faded nearly to pure white, and the brown edges of the scapulars or tertiary coverts to the

same colour; the white edges of the gray wing-coverts have worn off, and the feather is as the adult. This link consists in the mixture of the first plumage and the first winter, which is—

No. 5. *First Winter*. (In collection).—Bill and feet still black; orbits of the same colour; eyes dark brown; mouth yellow. The head is coloured similarly, or nearly similarly, to the adult in winter; the back, scapulars and the tertials also as the adult. The dark band is still on the neck, through the wing and on the tail.

No. 6. *First Spring*. March, April and May.—During the past winter the plumage has faded greatly, and these three months completely wear it out. The summer moult generally begins late in March, April, or even not till May; during these months it confines itself chiefly to the back, shoulders and neck, and is very gradual.

No. 7. *Second Summer*. June 20th. (In collection).—Many new feathers have come in the back and scapulars; the black band is gone from the neck in many birds, though is still noticeable in others by two or three feathers; the head and neck are a faded addition of last winter; the black band through the wing is very worn and faded to a rich brown; the quills of wing and tail are much worn and faded, the latter of course still banded at tip; the bill shows strong signs of turning yellow; the orbits and tips of a reddish brown; mouth of a yellow-orange; feet more of an olive-brown.

No. 8. Link 3. *Summer and Second Autumn Moult*.—Without cessation the moult has been going on through June, July, and even August, gradually. During these months the bird shows many different appearances, by the predominance of the old or new feathers. The primaries and tail are generally assumed last. Let the bird be as it will, it cannot be mistaken for any other age. Should it have changed plumage by July (which does not often happen) it may be known from the two-year old bird by the greater amount of black on the false wing and the primary coverts, and by the head being marked with gray and the orbits dull red.

No. 9. *Second Winter*.—Very similar to the adult in winter plumage. May be known from it by having black on the bastard wing and sometimes on the primary coverts. The feet also at this age are of a much darker colour than the adults. The primary quills are rather variable at this age.

No. 10. Link 4. *Second Spring*. February and March.—The head and neck turns white; at this age generally by moult.

No. 11. *Third Summer*.—Nearly as the adult in summer. At this age the black on the bastard wing, and sometimes on the primary coverts, and the *olive-brown feet* distinguish it from the adult. Wear has a considerable effect on the dark markings of the false wing, so that instances are not infrequent, about June and July, of two-year old birds showing but faint traces of black; enough generally remains to diagnose.

No. 12. Link 5. *Third Autumn*.—The moult in general extends into October: when completed the bird is in adult winter dress.

No. 13. *Adult in Winter*.—Forehead and before the eyes white; top of head and occiput white, speckled with leaden gray; the neck is strongly tinted with lead-gray, clouded with that colour at the nape; at each side of the nape is a small cloud of black. The black band, which we find at the base of the neck in the bird of the year, is reproduced in the adult in winter by lead-gray. Sides of the head and neck, throat and all the under parts, the tail and its coverts white. Before the eye a black spot and some black bristly hairs. The remainder of the upper surface of the body lead-gray. Some of the tertials and the elbow-quills tipped with white. The secondary quills are basally gray, with a deep white end. The bill lemon-yellow; lips and inside of mouth orange-red; orbits reddish brown; irides deep brown, appearing black. Feet a brown-olive.

Type of the Primary Quills.—No. 1. End of the feathers for about two and a half inches black, remainder of the shaft more or less smoky; the outer web is black, except sometimes a hair line of white along the shaft ceasing where the dark end of the feather begins; all the greater web but the end white. No. 2. Both webs pale gray, in parts inclining to white, their ends and the shaft for about two and a quarter inches black; rest of the shaft smoky. No. 3. The same; the dark end not so extensive: the black and the gray parts of this, and indeed all the quills, are separated by a white light: in old birds this quill is tipped with white. No. 4. Similar dark end not much over one inch in depth; is frequently deeper on the shaft of this and the other quills; tip white. No. 5. Dark end not over half an inch; a large white spot at tip. No. 6. I have found all gray, but the end white, and again with a black spot on one or both webs. The rest of the primaries are gray, in parts inclining to white. (In collection.)

No. 14. Link 6. *Adult in Spring*.—The transmutation of the head and neck from winter to summer.

No. 15. *Adult in Summer*.—As in winter, but that the head and neck are pure white, the orbits orange-red, and the feet *yellow-brown*. (In collection).

HARRY BLAKE-KNOX.

Anecdote of the Horse.—A somewhat remarkable instance of the horse's attachment to particular companions came to my knowledge a short time since. A pony which had been working some time in a coal-mine was drawn up and lowered into another mine, but, on finding itself among strange company, refused to eat. It was tried three days, but would not taste any food. It was then taken out and returned to the pit it had come from, when it manifested unmistakable signs of satisfaction, and commenced eating and working as usual.—*George Roberts; Lofthouse, Wakefield, October 30, 1866.*

Rats and Mice.—Rats and mice are numerous in the coal-mines about here. They go down with the oats, straw, &c., which are taken for the horses. They subsist on the horse-food, remnants of candles, and fragments which the miners waste at meal-times. Cats are taken down to assist in diminishing their numbers. Bats (the long-eared species) have been found in pits at a depth of one hundred and seventy yards. The longtailed field-mouse and the shorttailed field-vole leave their retreats in February. I observed one of the former inhabiting an old nest of the hedgesparrow in February: it was not torpid; it left its dormitory and descended to the bottom of the hedge to feed in the middle of the day.—*Id.*

Notes on the Mammalia of Norfolk (continued from Zool. S. S. 385).—

Polecat.—This formerly common species is now becoming rather scarce, owing to the strict measures that are employed in the destruction of "vermin," of which this is considered one of the most prominent agents. An individual or two is occasionally trapped in the game-preserves; the last example I heard of was a male, obtained in the vicinity of Fundenhall, a few days since.

Otter.—Two female specimens of the otter were obtained in the vicinity of Harleston, one on the 3rd of August last, and the other on the 2nd of November. I have also received information of the occurrence of two other individuals on Hickling Broad, a few days since.

Diseased Otter.—In dissecting the first example, mentioned above, I was much surprised to discover nearly the whole of the poor animal's intestines almost entirely covered with large ulcers, some of which measured as much as three inches in diameter. Its body was of course much swollen, indeed so much that it was apparently large with young. I recorded a curious instance of a diseased rat in the 'Zoologist' for 1865 (Zool. 9645), and Mr. Alston also mentions several cases of rats and mice (Zool. 9708), but these are all apparently skin diseases. The above circumstance is, I believe, rather remarkable and of very unusual occurrence; I never remember hearing or seeing recorded any similar instance. Perhaps some of the readers of the 'Zoologist' may have met with similar cases of internal disease in animals in the wild state.—*T. E. Gunn; 3 West Pottergate, Norwich, November, 6, 1866.*

The Harvest Mouse and the Cockroaches.—In August, 1865, one of my parishioners brought me a male harvest mouse. I put it into a dormouse-cage, where, after a short

time, it became very tame, and would rush to the wires with the greatest eagerness and take insects out of my hand. It ate blue-bottle and other flies, butterflies, moths, bees, wasps and Lepidopterous larvæ, and was specially fond of cockroaches. It would seize, worry and eat an immense full-grown specimen with the most amusing ferocity, and I have known it eat as many as fourteen in one night. It would also eat wheat, barley and oats, biscuit, cake, apple, nuts, and bread and milk, but its favourite food was insects. It lived in apparently perfect health for six months, and then died very suddenly.—*H. H. Crewe.*

Whales off the Isle of Wight.—Last week some whales passed by here, which unfortunately I did not see, but heard a coast-guardman say they were "either whales or 'black-fish.'" The following notice of the occurrence appeared in our local newspaper:—"On Thursday (Nov. 29th.) two Greenland whales (*Balæna mysticetus*), passed Ventnor, at an average distance from the shore of about one mile and a half, though at one time they were not further off than a quarter of a mile. They were very good samples of their class, and the volume of water thrown up by them each time they came to the surface for respiration quite astonished those who took them for porpoises." As I do not remember our being honoured with such a visit during some twenty years' residence, the occurrence seems worth recording.—*George Guyon; Ventnor, Isle of Wight, December 3, 1866.*

Ornithological Notes from Falkirk.—Redwings arrived with us much earlier than usual: I saw a flock of them on the 2nd of November, and we have had them more or less ever since: this flock occupied the top branches of some tall larch trees, and were twittering like so many swallows: I shot one in the act. A company of seven swallows passed overhead, going west on the following day. Woodcocks are plentiful on Torwood grounds: I heard that Colonel Dundas and party killed, on the 9th of November, fourteen couple, besides other game. A large flock of siskins, a bird which I have not seen here for some years, was busily engaged amongst the catkins of the alder trees in our marsh: to-day (November 19th) I shot two, the one an old bird, the other evidently a bird of the year. Immense flocks of wood pigeons are feeding on the beech-mast. There is every appearance of a severe winter; hard frost all to-day, accompanied by a cold north wind.—*John A. Harvie Brown; Dunipace House, Falkirk, November 19, 1866.*

Honey Buzzard in Aberdeenshire.—In the woods of Balogie, the property of Mr. Dyce Nicol, M.P., there were shot a pair of honey buzzards, male and female, one by the forester, the other by the gamekeeper. The female was shot on the nest on the 12th of July last; her mate was killed about a week previous. Their stomachs contained bees and honey. The nest was built in a tall fir tree, which was difficult to climb, the trunk being smooth and branchless. The nest was about three feet in diameter, very flat, and composed of twigs of various sizes (those uppermost being about the thickness of a pipe-stalk), and covered with grass-roots. The eggs, two in number, were about the size of those of the domestic hen, slightly tapered, their colour resembling rosewood, blotched with very dark brown. I am obliged to Mr. Robert Wilson, gunmaker, St. Nicholas Street, for the above information, to whom the birds were sent for preservation. Only one other instance of

the breeding of this species in Scotland is recorded. Macgillivray states that Mr. J. M. Brown found the nest and eggs in the woods of Abergeldie, in the county of Aberdeen, and says that he is only aware of three instances of this species having been killed in Scotland. Since then (1840) other two specimens have been obtained in this county. In September, 1864, Mr. Hyatt shot one in the pleasure-grounds at Crimmondmogat, and in September, 1865, another was killed on Dee-side, and sent to Mr. Mitchel for preservation.—*W. Cruikshank Angus.*

Rare Birds in Northamptonshire.—I have to record the capture of a Manx shearwater, in the early part of last September. It was taken alive, uninjured, feeding (?) with some chickens in the town. It drank water freely, but not being supplied with proper food it died. A female lesser spotted woodpecker (*Picus minor*), and a male great spotted woodpecker (*Picus major*), both rare in this neighbourhood, have been shot within the last few days. Several gray phalaropes were also shot in September. A male crossbill and a Bohemian waxwing have also occurred.—*Henry P. Hensman; Northampton.*

Occurrence of the Merlin in Scilly.—A male merlin, having just completed his moult, and presenting the beautiful plumage of the adult bird, with a light blue back, was sent over from the Islands yesterday.—*Edward Hearle Rodd; Penzance, November 6, 1866.*

The two Great Gray British Shrikes.—My friend the Rev. John Jenkinson, of Reading, who has been staying with me, gave his attention with myself to the subject of the supposed two species of gray shrikes which have been regarded as British, and during his stay we went closely into the investigation of the subject, and which resulted at length in my requesting him to put on paper, for the use of the "Zoologist," the following remarks, which have been perused by me, and which are in accordance with my own views. I may add that I have mentioned the subject to Mr. Gould, who quite appreciates the care that is due to the specific identity of the two birds as British. Mr. Gould, however, seems to support the important point that the *male* of our *Lanius excubitor* has *two white spots* on the wing, whilst the *female* has *one* only. You will observe that Mr. Jenkinson calls especial attention to the female bird in my case, as having a *shorter, deeper, and a differently formed bill* from the other which is in the male plumage.—*Id; December 13, 1866.*

Great Gray Shrike.—Notices have appeared occasionally in the 'Zoologist' of another gray shrike differing from the common one, and spoken of as the "greater northern shrike (*Lanius borealis*)."

Apparently this bird is not much less common than the other, and therefore there ought to be sufficient examples of it to settle the question of its distinctness, and to enable it to be clearly identified. The following descriptions of four birds will show the points of difference between the so-called *L. borealis* and *L. excubitor* in its different states of plumage. Nos. 1 and 2 are in Mr. Rodd's collection; No. 3 in my own possession; No. 4 in the Truro Museum.

No. 1. Adult male of *L. excubitor*. Whole upper surface pure blue gray. Through the eye and ear-coverts a black streak with a whitish edge above. Whole under surface white. Distribution of white in wings and tail as follows:—A bar across the primaries and secondaries, forming *two* spots on the closed wing. Scapulars largely tipped. Secondaries tipped. Four central tail-feathers black, the next on each side tipped with white, which increases rapidly in an oblique line to the root of the outer feather, which is all white.

No. 2. A much smaller bird, recorded by Mr. Rodd as a female:—Whole upper surface gray, less pure and blue than No. 1, with slight mixture of rusty about the head. The streak through eye much *broader*, with no indication of an upper white edge. Under surface white, but not very pure, and mixed with a rusty tinge. Distribution of white, &c. Bar, on primaries *only*, forming *one* spot, *no* white on scapulars. Secondaries slightly tipped. Four central tail-feathers black, the rest tipped and based with white, the white chiefly at the base, and the proportion of black to white greater than in No. 1: outer feather white. The black of this bird is really more brown than black, the eye-streak being the nearest approach to real black.

No. 3. Slightly smaller than No. 1. Apparently adult female of that bird. Upper surface blue-gray, with a good deal of rusty tinge, especially on top of head. Eye-streak duller than No. 1, with whitish edge above. Under surface dirty white, with greyish crescentic marks. Distribution of white, &c. Bar, on primaries *only*, forming *one* spot. Scapulars tipped, but less largely and purely than No. 1. Secondaries and some of the primaries tipped. Greater wing-coverts edged and tipped with rusty white, forming a narrow line across the wing. Tail as in No. 1, but rather less white.

No. 4. Nearly the same as No. 3, but the crescentic markings fewer and fainter and *two* spots on wing. Query, an immature male of No. 1. If so, it would seem that *two* spots on the wing are distinctive of the male and *one* of the female of *L. excubitor*.

Nos. 1, 3, 4, are clearly of the same species, *viz.* *L. excubitor*, agreeing in all those points in which they differ from No. 2. The points of difference are these:—1st, as to size. No. 2 is a much smaller bird than the other. The tail is three-quarters of an inch shorter than in No. 1. Wings from carpal joint same length. This makes No. 1 look a shorter winged and longer tailed bird, in proportion to its size, than No. 2. 2nd. Beak of No. 2 stouter in proportion to bird, and the ridge of the upper mandible more quickly curved. 3rd. Distribution of white, especially in the tail: in No. 2 the black predominates,—in No. 1 the reverse. This point of difference, as well as that of size, is correctly noticed in the 'Zoologist' for 1850 (Zool. 2650).

No. 1 is undoubtedly the bird known as *L. excubitor*, and so described in Yarrell, who, however, does not mention the spots in the wing of the female as differing from those in the male. Pennant, Selby, Bewick, Temminck, Gould and Montagu, all seem pretty clearly to describe the same bird as *L. excubitor*; though they all speak of only *one* spot of white on the wings. No. 2 is not described by any of them. It seems, however, pretty clearly to be a distinct bird. Being so, and being a smaller bird, is it rightly called the "greater northern shrike (*L. borealis*);" and where is it described? It would be an assistance if any persons having specimens of the gray shrike would say, having reference to the points of difference above named, to which species they belong. It would enable us to judge which of the two is the most common, and whether those differences are true points of distinction between two species; especially if they would notice anything in which the differences named are not borne out. No. 2 being a female, a description of the male bird is desired, and can perhaps be furnished by some one.—*J. H. Jenkinson*; December, 1866.

PS. I think in all probability some of those noticed as "greater northern shrikes" are merely *L. excubitor*; *e.g.* 'Zoologist' 1850 (Zool. 2649), where a female

bird is described as *L. borealis*, which is identical with my No. 3; so perhaps No. 2 is not so common as the notices would seem to make it, and the term "greater" may have helped to puzzle people.—*J. H. J.*

Woodchat Shrike, Sabine's Gull and Gullbilled Tern in the Neighbourhood of Plymouth.—Within the past two months the following exceedingly rare birds have been obtained in the neighbourhood of Plymouth, all of which I have myself examined:—Female woodchat shrike, captured with bird-lime, and kept alive for some days on raw liver: this bird was in severe moult, and the old plumage much worn. Sabine's gull, a young bird of the year, killed in Plymouth Sound, and stated in one of the local papers to be the gullbilled tern, which it in no way resembles. Gullbilled tern, immature, shot on the Saira; from the gullet and stomach of which several beetles were taken: the colour of the bill of the young gullbilled tern is said by most authors to be of a bluish black, but in this bird the base of the lower mandible is of a yellowish orange, as described by Temminck. I feel much pleasure in being the first to record the occurrence of the three above-mentioned birds in the vicinity of Plymouth. Many black redstarts have already made their appearance on our coasts.—*J. Gatcombe; Plymouth, November 16, 1866.*

Nesting of the Song Thrush.—Last April I discovered a nest of the song thrush in a rather unusual situation. It was fixed on the top of a rail which was standing on one end in a disused tramway arch. One end of the arch was built up, and the place was dark in the daytime. The nest was robbed by mischievous boys. The birds built again not far distant, on the ground, among loose straw. I also found a nest of the thrush, the soft lining of which was inlaid all over with bits of rotten wood.—*George Roberts; Lofthouse, Wakefield.*

Nesting of the Flycatcher.—The nest of the spotted flycatcher has been variously, and I think in some instances incorrectly, described. Macgillivray says the nest "is small, compact, composed of straws, moss and hair, and lined with feathers." According to Montagu, it is "formed of bents, moss, and such like materials, interwoven with spiders' webs, and lined with feathers." The Rev. J. C. Atkinson, in his little work 'British Birds' Eggs and Nests,' describes it as composed of "moss, old and new bents, straws, twigs, hairs and feathers." In Knight's 'English Cyclopædia,' it is said to be "loosely constructed of moss, fibres, catkins of the hazel, or small twigs, lined with straw and wool, or hair and feathers." Now, I have seen many nests of the flycatcher, but I have seldom found feathers in the lining. I have found a little wool or hair. One that I minutely dissected last year was composed externally of dry soft bents and a little moss, and finished with soft moss, and strips of red bark. This red bark, which by the way is almost the colour of the eggs, has *always* formed a portion of the inside and rim of the nests I have observed here. I should, however, remark that I have found my nests in an orchard where red bark of the cherry and plum tree is at hand. There was neither hair nor feathers in the nest that I examined. In corroboration of Montagu, I have sometimes seen the rim finished with masses of old spiders' webs. The writer in 'Knight's Cyclopædia' is certainly in error when he says the nest is loosely constructed, for it is generally, and accurately, described as compact; in fact, I have found some nearly as closely made and as elegantly finished as the nest of the chaffinch. It has been interesting to me to learn recently, from Wilson's excellent work on American birds, that some of the American flycatchers use bark in the formation of their nests. Wilson, who was a minute describer of nests as

well as other things, says the nest of the redeyed flycatcher* (*Muscicapa olivacea*) "is formed of pieces of hornets' nests, some flax, fragments of withered leaves, *slips of vine-bark*, bits of paper, all glued together with the saliva of the bird and the silk of caterpillars, so as to be very compact; the inside is lined with fine slips of grape-vine bark, fibrous grass, and sometimes hair." The nest of the yellowthroated chat (*M. sylvicola*) "is composed outwardly of *thin strips of the bark of grape-vines*, moss, lichen, &c., and lined with fine fibres of such like substances." The peculiar materials of the nests of these two foreign flycatchers resemble remarkably, being indeed almost identical with the materials of the nest of our own flycatcher, as far as I have observed. Feathers, be it remarked, are not mentioned by Wilson. The use of red slips of bark I consider a peculiarity which would enable anyone acquainted with the nest to distinguish it among a hundred others. The flycatcher frequently builds its nest in places where it fails to rear its young. One year I found one in a hollow of a cherry-tree, where, during a heavy thunder-storm, the rain collected, and the young were drowned. Another I found, built right at the end of a long, horizontal pear-tree arm, was demolished by the wind.—*George Roberts; Lofthouse, Wakefield.*

Instance of Fearlessness in the Blackcap (*Sylvia atricapilla*).—In the course of the summer of 1865 I was visiting an uncle who resides in this neighbourhood, when my little cousins came running to me and said, "Oh, cousin Harpur, come and look at our blackcap's nest;" and so to look at it I went, and in a small juniper bush I found a female blackcap sitting upon her nest. She did not evince the least alarm at my approach, and upon putting my finger into the nest to feel how many eggs there were in it, instead of flying off, she set up her feathers and pecked at my hand in the most furious manner, and I had to push her aside in order to discover how many eggs she had got. Upon expressing my surprise at her extraordinary tameness my young relations remarked, "Oh, she always does like that, and we have to push her off the nest whenever we want to look into it, but when the cock bird is on he flies off as soon as we try to touch him." This bold little lady hatched her eggs, but I regret to say that the nest from frequent handling got rather lop-sided, and the young birds fell out and came to grief.—*H. Harpur Crewe; Rectory, Drayton-Beauchamp, Tring, November 14, 1866.*

Rock Pipit inland.—On the 24th of October I shot a rock pipit (*Anthus petrosus*) on a fallow field at Willesden Green, which must certainly be more than twenty-five miles from the sea. It was in company with several meadow pipits, and also one of its own species, which I take to have been a male, as my bird is a female. It was in very good condition, but I regret to say that I did not examine the stomach, and so am unable to say whether it was fresh from the sea-coast or not. The wind was E.N.E. on the previous day.—*Charles B. Wharton; Willesden, Middlesex, October, 1866.*

Lapland Bunting in Lancashire.—On the 27th of October I purchased in Liverpool Market, from a Southport birdcatcher, a fine young male of the above species, which was exposed for sale in a cage along with a large number of sky larks. I did not know what bird it was at the time, and asked the man no questions, but have since been told by another Southport birdcatcher (not having seen the same man since)

* For an account of this bird see Newman's 'Montagu's Dictionary.'

that the birds were all caught on the sand-hills in the neighbourhood of Southport, which I do not doubt, as the man appeared to me not to know that any bird was in the cage except larks; it was some time before I could make him understand which bird I wanted out of the lot, and it was only when he got the bird in his hand that he saw it was not a sky lark, and then gave it the name of "moor lark" (a name I never heard before, and none of the other birdcatchers who frequent the market could tell me what a "moor lark" was): I suspect he never saw a bird like it before. Two or three naturalists have seen it, and are quite satisfied that it is a Lapland bunting, though it is not in the plumage of that bird as figured by either Audubon or Gould. It measures as follows:—Length from tip of the beak to the end of the tail, $6\frac{1}{2}$ inches; from the carpal joint to the end of the longest quill-feather, $3\frac{3}{4}$ inches, and tarsi over $\frac{7}{8}$ ths of an inch. Legs, toes and claws pitch-black; the hind claw almost straight and longer than the toe. It runs like a lark, but occasionally hops, seldom perches, but does not roost on the ground. It made itself perfectly at home in my aviary from the first, and eats any kind of seed along with the other birds, and seems particularly fond of oats. It differs from the figure of the adult male in not having the black on the hind throat and breast well defined, but is already much darker than when I obtained it. The scapulars are broadly edged with yellowish brown, as in the snipe; and the chestnut colour at the back of the neck does not show much, but on separating the feathers they are chestnut-coloured below the tips, and if the bird lives will no doubt before long assume the beautiful appearance of the adult male.—*Nicholas Cooke; Spring View, Liscard, November 18, 1866.*

Snow Bunting at Sea.—On the 22nd of October, while some two or three hundred miles to the south-westward of the Scilly Islands, a male snow bunting, in fine plumage, flew on board, and was captured by myself. It was apparently much exhausted, and although tempted with every description of food it refused to eat, and died the next day. This is rather far south to meet with this species at such a time of the year, especially as we hear of no severe weather in the north to speak of.—*G. F. Mathew; Barnstaple, November 3, 1866.*

Snow Bunting at Hunstanton.—On the 14th of September I shot a good specimen of the snow bunting, at Hunstanton, in Norfolk. It was hopping about on the sand, at about fifteen yards from the sea: it allowed me to get within twelve yards of it. I made several inquiries, and found that none had been seen at Hunstanton during the summer. It is now being preserved by Mr. Whitely, of Woolwich. I observed, as late as the 20th of September, a pair of swifts flying along the cliff, in company with several jackdaws.—*A. C. Kennedy; Eton, November 8, 1866.*

Nesting of the Nuthatch.—In the 'Zoologist' for November, 1866 (Zool. S. S. 487), it is stated that the nuthatch's nest is always placed in a hole of a tree, and also that it was a difficult nest to find. I do not contradict the last statement, but on the 2nd of May, 1866, while in search of nests, I happened to enter a sand-pit. My attention was drawn to a deserted sand martin's hole, neatly plastered up with a very dark substance, like mud, with the exception of a very small hole in the centre. Upon going up and examining it, I found it was a nuthatch's nest: upon extracting the mud, which came out perfectly whole, I put my hand into the hole, which was about two and a half feet in length, and at the further end I perceived a nest, cleverly covered up with the thin bark off Scotch firs, containing three eggs, two of which I took and left one remaining, and replaced the mud as well as I could. The next day I came,

removed the mud, and took out the newly-laid egg, and so for four successive days I came and took my egg. I have the mud with which the hole was obstructed in my possession at the present time.—*E. Charles Moor; Great Bealing, Woodbridge, Suffolk, November 20, 1866.*

Shore Larks in Suffolk.—On Friday last I saw two shore larks (*Alauda alpestris*) at Mr. Swaysland's: these had been shot in Suffolk, and sent to him to stuff. They were killed, I believe, on the 29th of November.—*George Dawson Rowley; 5, Peel Terrace, Brighton, December 10, 1866.*

Nesting of the Cole Tit.—I was led to a nest of this bird the other day (April 30th) in a curious manner. I was passing along a foot-path, when my ear caught a tapping sound, like that made by the woodpecker. I looked round awhile, but could see no bird nor any other animal; the noise, however, drew me to a rather thick, partially decayed thorn in a hedge-row, and in the side of it, about a yard from the ground, I perceived a small newly-made hole. Presently I saw bits of rotten wood falling down the side of the tree. Just now a cole tit made its appearance in the hedge, uttering a certain note; the little excavator, which had been working in the interior of the hole, then emerged, and the pair flew away. About an hour afterwards, when returning, the tapping was going on again. I stopped, and the sentinel outside (the male) came into the bush, made the same alarm, the worker emerged, and they both flew away as before. I could not see how the bits of rotten wood were ejected from the hole, which was nearly a foot in depth, but I could see them dropping to the ground. The materials of the foundation of the nest were thin strips of dry bark, fine dry grass and plant-down; lining, plant-down, rabbit-down, a few feathers and bits of dry wood. It contained eight eggs, size and colour of blue tit's.—*George Roberts; Lofthouse, Wakefield.*

Visit of the Bohemian Waxwing.—On Wednesday, November 28th, Mr. Knight, of Ongar, Essex, shot one of these birds: it is in the hands of Mr. W. Scruby, Ongar, for preservation. On Friday, November 30th, Mr. Salt, gamekeeper to Mr. Meynell Ingram, at Laughton, shot one: on examining the bird, which was a male, the food in the crop was found to consist almost entirely of broken fragments of the haws of the dog-rose: there were three more in company with the one shot. One specimen was shot at Ealing, Middlesex, the week before last: it was feeding, among other birds, on hawthorn-berries. Last week twenty-one of these birds were seen by a brewer's man in Cleveland, sitting in a tree by the road-side: he borrowed a gun, and shot seven of them; the remainder, with one exception, have been shot: seventeen of the number are now at Guisbro', being stuffed by Messrs. Page and Reynolds. During the last week three of these birds have been shot in the woods about Faversham, and they are now in the hands of a taxidermist residing in Faversham for the purpose of being preserved. During the last few days large numbers of these beautiful little birds have made their appearance on the coast of Norfolk, and upwards of a score have been shot or captured: sixteen were counted on one tree alone, and appeared extremely tame or very exhausted. The gamekeeper of Colonel Mackintosh, of Farr's, saw, on December 8th, a large flock, and shot two, male and female, both very fine birds, in perfect plumage, and wax on each of the wings: they were sent to Mr. Snowie, gunmaker, Inverness, for preservation. About a week since one of these birds was shot at Hermitage, near Newbury, Berkshire: it was alive when taken to Mr. Ralph Alder, whose wife kept it for three days, when it died from its wound: during its confinement it fed from the

hand on the berries of the mountain-ash, and took water: it was apparently tame, excepting when no one was in sight, and then it made (when watched) strong efforts to escape: the bird has been preserved by Mr. Alder, in whose possession it now is. (Hungerford). From these records it appears that the visit of this beautiful bird has been very general, although the numbers have not been so great as in the winter of 1849-50, when records of 586 being killed appeared in the 'Zoologist' (see 'Dictionary of British Birds,' p. 29). I shall be truly obliged for further information.—*Edward Newman.*

Waxwings.—An enormous flight of waxwings has appeared on the coast of Norfolk. More than ninety have been killed. My friend Mr. Stevenson has seen more than sixty of them.—*Id.*

Waxwings near Woolwich.—I have this day (December 3rd) received a letter from my friend Mr. Whitely, of Woolwich, who tells me that he has had brought to him, during last week, no less than eight good specimens of the waxwing. This species is now, I believe, a very rare and only occasional visitor to the British Isles: some of these were shot in the Plumstead Marshes, near Woolwich, and two were procured in the Maryon Road, at Charlton, which is about four miles from Plumstead. They were all, I believe, excellent specimens. I do not know on what days they were shot, whether on fine ones or the contrary; but I presume that it was partly owing to the weather that such a number (in comparison) should be taken about the same time.—*A. Clark-Kennedy; Eton.*

Bee-eater at Stapleton, near Bristol.—Several bee-eaters appeared at Stapleton the beginning of last May, and three of them were shot. One killed on the 2nd of May came into the possession of Mr. Wheeler, birdstuffer, of St. Augustine's, Bristol, and was preserved by him.—*M. A. Mathew; Weston-super-Mare, December 13, 1866.*

Swallow-stones (see Zool. S. S. 523).—Describing how Basil and Evangeline were together in their childhood, Longfellow says:—

“Oft in the barns they climbed to the populous nests on the rafters,
Seeking with eager eyes that wondrous stone which the swallow
Brings from the shore of the sea to restore the sight of its fledglings;
Lucky was he who found that stone in the nest of the swallow!”

—*Evangeline, Part I.*

Cream-coloured Sand Martin.—I have had sent to me a most beautiful cream-coloured sand martin, to case, for Mr. G. Wright, of the “Lee Tavern,” Hackney Wick, where it can now be seen: it was shot by him on Hackney Marshes last August.—*B. Hesse; Alfred House, Chisenhale Road, Victoria Park, November 19, 1866.*

Food of the Wood Pigeon.—While the subject is still under discussion, I may mention that in the crops of specimens killed in the Vale of Ffestiniog, North Wales, in 1865, I found the seeds of *Ranunculus acris* in large quantities. Turnip-leaves seem to be preferred to those of the cabbage, probably because the former are usually grown in less dangerous situations; nevertheless in hard weather I have known a flock of wood pigeons completely destroy whole beds of winter cabbage, picking out the soft parts of the leaves, and allowing very little besides the bare ribs and stalks to remain.—*Henry L. Saxby; Baltasound, Shetland, October 23, 1866.*

Gray Phalarope at Shoreham.—While shooting last month at Shoreham, I observed swimming in a small pond, about a hundred yards from the sea, a gray phalarope: it was feeding at the time, every now and then adroitly plunging its beak into the water

to catch the numerous insects on the surface. Mr. Wells, of Shoreham, who was with me, immediately shot it, and it is now in my collection: it is a very good specimen, in winter plumage. Mr. Wells had shot, in the same week, five other specimens, all in winter plumage.—*T. A. Hawker; Dunchurch Road, Rugby, October 30, 1866.*

Gray Phalarope at Barnstaple.—I have to add the neighbourhood of Barnstaple to the list of places on our coasts visited by the gray phalarope this autumn. During the second and third weeks in September this little bird occurred on the River Taw in considerable numbers. I have been told that several were caught by hand, and many others shot. I saw three examples in the birdstuffer's shop at Barnstaple, and he told me that several others had been brought to him.—*M. A. Mathew; November 1, 1866.*

Purple Sandpiper, Little Gull and Fulmar Petrel on the South Coast of Devon.—During a short stay at Teignmouth I obtained specimens of the above-mentioned birds. On the 22nd of November I obtained several specimens of the purple sandpiper from a small flock of these birds, which I found on the rocks at the mouth of the river at Exmouth. On the 24th of November, when out in a boat, over the bar of the Teign, I had the good fortune to obtain a specimen of the little gull: this bird is in the plumage described by Yarrell (vol. iii. p. 565, 3rd edition) as that of a young bird of the year, except that the white collar on the nape of the neck and black band below it are wanting. The Fulmar petrel I picked up alive on the beach between Dawlish and Storreross on the 30th of November: the bird was too wet and exhausted to fly, but quite alive enough to bite: it had been blowing hard all that night from the N. and N. E., and the wind having shifted in the morning to E. and S. E., there was a heavy sea on at the time: the bird when I picked it up was lying just above the reach of the waves: it appears to be an adult bird, as the only point of difference to the description in Yarrell being that the irides are dark instead of light yellow, and there is a small dark patch immediately before the eye.—*Cecil Smith; Lydeard House, Taunton.*

Gadwall shot on the Tay.—On Thursday last (November 22nd) I purchased a very fine specimen of the gadwall, in the flesh, from my birdstuffer in Edinburgh, Mr. Small: he had the day before picked it up in the Edinburgh Market, and was informed by the person he bought it of that it was shot on the Tay, below Perth, two days earlier. In every respect it was in fine plumage, except that the chestnut colour of the middle wing-coverts was not so bright or distinct as it would probably have been had the bird been procured later in the winter. The scale-like feathers of the breast, however, were very distinct in their markings. I have not heard of the gadwall having been killed in Scotland for a long time before.—*John A. Harvie Brown; Dunipace, November 24, 1866.*

Baldheaded Eagle in Achill.—I received a letter, dated November 24, 1866, from my friend Mr. C. G. Danford, who was then residing at Achill, in the West of Ireland. Part of this letter I shall copy for your consideration. Although the facts hereafter related can scarcely be considered conclusive, nevertheless I think that they are deserving of some notice. Mr. Danford has an excellent knowledge of birds, and is not one who would too rashly jump at a conclusion. Of the gentleman—a Mr. Boycott—of whom he speaks in his letter as being the actor in the adventure, he says previously “he knows birds very well.” Now, without further preface, I shall give that portion of his letter which relates to the bird the name of which heads this note. After talking of the tall cliffs around Achill, and of having himself watched for

eagles on their summit Mr. Danford goes on to say:—"Last year he (Mr. Boycott) was watching for eagles at the cliffs I told you of, shot one, and was just going to load again, when he saw another bird coming. He fired at and winged it, and it fell on the edge of the cliff. He went up to hit it with his loading-rod, and saw to his surprise that it was a different kind of bird, *pure white head*, and *all* the other plumage dark. It just flapped over the cliff and fell on a ledge below. He went down, and almost got a hit at it, when it struggled a bit, and this time toppled clean over into the sea." Mr. Danford concludes, "Without doubt, from his (Boycott's) description, it must have been the American baldheaded eagle." Such is Mr. Danford's letter, and I leave it to you to think over. For my part I think there is nothing improbable in the fact of its really having been the American eagle. The wild coasts of west Ireland have been but little explored comparatively by the ornithologist, and there is no place in all the British islands more suited for that bird to place its foot. It is nearest to its native country, and the cliffs are as high if not higher than any others along that coast.—*John A. Harvie Brown ; December 24, 1866.*

Curative Powers of the Tench.—I have just read in to-day's 'Standard' that "A few years since the ponds in Frogmore Gardens (Windsor) were dragged for the purpose of destroying the jack, when one was caught weighing between thirty and forty pounds, with a tench weighing seven pounds in its pouch." There has long been a notion prevalent among anglers that of all fresh-water fish the tench alone enjoys perfect immunity from the attacks of the jack or pike. It has been imagined that the slimy matter which covers the scales of the tench has peculiar curative powers, of which the pike is fully aware, and this superstitious notion, like many similar ones, has been adopted by the poets:

"Close to his side the kind physician glides,
And sweats the healing balsam from his sides."

If this privilege really exists it is more probably owing to a certain distaste in the pike for the balsamic secretion of the tench, but if the above-quoted instance is true, it would seem that the last-named fish may trust too confidently in the forbearance of the "fresh-water shark." I should like to hear the experiences of others on this subject.—*George Guyon ; Ventnor, Isle of Wight, October 24, 1866.*

Scyllarus arctus near Penzance.—A specimen of *Scyllarus arctus* was brought to me yesterday: it was thrown up by a cod which was caught near Mousehole Island, in this Bay. It was perfectly fresh and uninjured, and must have been swallowed by the cod very shortly indeed before its capture. This makes the fourth specimen captured in English waters of which I am aware. The earliest is in the collection of Mr. Couch, of Polperro, taken from the stomach of a cod captured off that place. The next is a specimen in the collection of the late Mr. R. Q. Couch, of this place, of which no particulars are known, beyond that it was probably taken in this Bay early in 1863. The third was taken alive here last year, and noted in your pages by me, and this fourth is procured in the same waters as the third. My two specimens will be found in the Museum here.—*Thomas Cornish ; Penzance, November 28, 1866.*

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

November 5, 1866.—Sir JOHN LUBBOCK, Bart., President, in the chair.

The Meeting was this day for the first time held in Burlington House. A resolution in the following terms was proposed by the President, seconded by Mr. Alfred R. Wallace, and carried by general consent:—

“That the Society desires to record its sense of the liberality and kindly feeling of the Linnean Society evinced by the permission given to assemble in these Rooms, and that the thanks of the Society be offered to the Linnean Society accordingly.”

Notice of Subjects for Discussion.

The President referred to the suggestions made by the Council twelve months previously (see ‘Proceedings,’ 1865, p. 128), as to giving notice beforehand of papers intended to be read or subjects to be introduced for discussion. In no single instance had notice been given; but the Council was so convinced that the interest and scientific value of the Meetings would be increased by the adoption of such a course, that he had been requested again to mention this matter from the Chair. If the Secretary were forewarned in time to announce the subject for consideration in the ‘Athenæum’ of the Saturday preceding the Meeting, Members specially interested in and conversant with that subject would probably make a point of being present, and moreover invitations might be issued to men of science who were known to be well acquainted with the matter, and thus the discussions, otherwise desultory, might lead to definite practical results.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:— ‘The Journal of the Linnean Society,’ Zoology, Vol. ix. No. 34; presented by the Society. ‘The Journal of the Royal Agricultural Society of England,’ 2nd series, Vol. ii. Part 2; by the Society. Hewitson’s ‘Exotic Butterflies,’ Part 60; by W. W. Saunders, Esq. Lacordaire, ‘Genera des Coléoptères,’ Vol. vii., and Parts 7 & 8 of the Plates; by the Author. ‘Observations on the Development and Position of the Hymenoptera, with Notes on the Morphology of Insects,’ by A. S. Packard, jun.; by the Author. ‘Eugereon Boeckingii, eine neue Insectenform aus dem Todtliegenden,’ by Dr. Anton Dohrn; by the Author. ‘Stettiner Entomologische Zeitung,’ 1866, Parts 7—12; by the Entomological Society of Stettin. ‘The Zoologist,’ for October and November; by the Editor. ‘The Entomologist’s Monthly Magazine,’ for October and November; by the Editors.

Election of Member.

Colonel Henry Scott, R.E., Sec. R.H.S., of Ealing, was ballotted for, and elected a Member.

Exhibitions, &c.

Mr. W. W. Saunders exhibited two larvæ of *Cicadæ* from Mexico, each of which had a *Clavaria* growing from between the eyes; the fungi were probably of the same species, though dissimilar in their development. He remarked that these fungoid excrescences were most frequently found on Lepidopterous larvæ, and usually arose from the joint immediately behind the head; in the present case, however, the *Clavariæ* sprang from the front, giving to each larva the appearance of the conventional unicorn. It was a question whether the growth of the fungus commenced during the life of the insect; he was not aware of any observation which supported that notion, and thought that the growth did not begin till after death. Acting upon the suggestion of the President, Mr. Saunders promised to bring forward for discussion the subject of "Fungoid growths on Insects" at a future Meeting, of which due notice should be given.

Mr. Bates mentioned that some capital articles on insect-fungi by Mr. Cooke had recently appeared in Hardwicke's 'Science Gossip.'

Mr. W. W. Saunders exhibited two larva-cases sent from Brazil by Mr. Reed, one of which was zoned or ribbed in different directions so as to form quite a regular sculpture on the outside; the two were somewhat similar, and probably belonged to two species of the same group of Coleoptera.

Mr. Janson exhibited various new or rare Coleoptera recently received by Mr. Bakewell, from Dr. G. Howitt, of Melbourne, *viz.*, *Hemiphasis Bakewellii*, *White*, from Melbourne; *Passalus teres*, *Perch.*, New South Wales; *Lissotes oblitteratus*, *Westw.*, Hobarton; *Lissotes cancroides*, *Fabr.*, Hobarton; *Lissotes subtuberculatus*, *Westw.*, Hobarton; an apparently nondescript species of *Lissotes* from Victoria, to which Dr. Howitt applied the trivial name "*furcicornis*"; a new species of *Ceratognathus*, from Hobarton, for which Dr. Howitt proposed the specific title "*setiger*"; and *Dorcadida bilocularis*, *White*, from Hobarton.

Mr. Stainton exhibited the specimen of *Stathmopoda*? *Guerinii*, which he had received from M. Guérin-Ménéville in 1857, with the intimation that it was "*écloso d'une grande galle sur le pistacier*," and which till last month had remained unique. Towards the end of September Dr. Staudinger, who had gone on a collecting expedition to Celles-les-Bains (Department of Ardèche) sent over some Nepticulized leaves of *Pistacia terebinthus*, and on the 28th of September Mr. Stainton wrote suggesting a search for the gall-feeding *Stathmopoda*. On the 2nd October Dr. Staudinger wrote in reply:—"Many thanks for the notice respecting *Stathmopoda*? *Guerinii*, of which I herewith send you five larvæ. I had long noticed the galls on the *Pistacia* (often very large), and had opened some, but there were thousands of *Aphides* within and a quantity of white dust, so that it seemed an unprofitable occupation. To-day, however, I have renewed my search with fresh energy, though it is very dirty work, as there is besides a resinous secretion. I found, however, two sorts of larvæ in them, generally living amongst hundreds of *Aphides*, on which they probably feed, since I did not find the inner parts of the galls eaten; the larger larva belongs to the *Phycidæ*, and the smaller white larva is that of *Stathmopoda*? *Guerinii*; of this latter I also found pupæ, and in one firmly closed gall a fresh specimen of the perfect insect. There are three kinds of galls on the *Pistacia*; the largest is at the ends of the

shoots, elongate and curved, but they vary much in form and size; one which I found was nearly a foot in length. It was only in this kind of gall that I found the larvæ of the *S. Guerinii*, generally in the smaller specimens. The larva makes a firm case of grains of excrement, which is attached to the inside of the gall; generally there is an opening made, through which the perfect insect may escape, yet I found some galls in which this was not the case, and in which the moth would only come out in the interior of the gall. I imagine that the Aphides are the originators of the galls, in which subsequently the moths lay their eggs; but on what do the larvæ feed?" Ten days later Dr. Staudinger had been able to add some further details:—"The Aphides originate the galls, then the moths deposit their eggs on them: the larvæ feed on the inner walls of the galls: the larvæ of *Stathmopoda Guerinii* sometimes leave the open galls and creep to some distance to undergo their change to the pupa state; but more frequently they remain in the galls. The pupæ stick sometimes half out of the galls, and then retreat back again; they do this especially when there has been heavy rain, and the water has penetrated the galls." A beautifully coloured drawing, by Miss Wing, of the gall and larva was also exhibited.

Mr. Stainton also stated that he had lately received from Herr Hofmann, of Ratisbon, a larva in the berries of the alder, which was presumed to be that of *Stathmopoda pedella*; of this he exhibited a figure, and remarked that it was with the greatest difficulty that this larva could be got out of the alder-berries alive, for it was often in a burrow close to the central core, and owing to the hardness of the berry it was almost impossible to avoid the destruction of the larva.

Mr. Stainton exhibited a collection of *Tineina* from Syria and Asia Minor, which Herr Lederer, of Vienna, had liberally sent over to enable him to work out the collection of insects made by Mr. Pickard-Cambridge in Palestine. Several of these were of extreme beauty, and some belonged to genera not known to occur in Europe. Mr. Stainton remarked that in addition to a specimen of the species which Zeller had described in 1847 as *Dasycera imitatrix*, from its extreme similarity to *Dasycera Oliiviella*, there were two specimens from Amasia which seemed intermediate between *D. imitatrix* and *D. Oliiviella*; and that when species came so extremely close together it was important to examine a long series, in order to ascertain the extent and limits of variation in each.

Mr. F. Smith exhibited some galls found in July, at Deal, on the shoots of the elm, and which when fresh were of an apple-green colour, with the side exposed to the sun of a rosy hue, so that they had a perfectly fruit-like appearance: they were of considerable size, hollow, and contained numbers of Aphides, probably a couple of hundred in a single gall. He had sent specimens to Mr. Armistead, who believed the gall to be undescribed.

Mr. M'Lachlan found the same gall in the summer near Kingston-on-Thames, not on the *Ulmus campestris*, but on what he believed was known as the Dutch cork elm; they contained Aphides, and were full of water.

The President remembered to have seen very similar galls near Naples, he believed on elm.

Mr. Pascoe exhibited two females of a *Coccus*, the case or covering of which resembled a small shell, and might well be mistaken for a *Patella*; they were from Port Lincoln, South Australia, and were said to have been found "on the under side of *Eucalyptus* leaves."

The President exhibited specimens and magnified drawings of a new Myriapod, about one twenty-fifth of an inch in length, and remarkable not only for its small size but for the small number of legs, having only nine pairs: he found it not unfrequently in his kitchen-garden, among decaying leaves and in other similar situations. It might at first sight be taken for a larva, but he had watched many specimens for nearly two months, and during that time they had not undergone any further change or exhibited signs of further development; moreover, some of the males contained spermatozoa, which showed that *they* were mature. The first pair of legs was attached to the segment immediately succeeding the head, the other eight pairs to the four following segments; the youngest specimens were provided with only three pairs of legs, there was no eight-legged stage, but at a single moult they changed from three pairs to five pairs, and afterwards to six, seven, eight and nine, acquiring a new pair at each successive moult. The animal was white in colour, active in habit, intelligent in appearance, and frequently occupied itself in cleaning its feet with its mouth, after the manner of a fly or cat. In many other points it differed from all centipedes, of which the President believed it to constitute a new type; the Myriapods were separated from other Arthropods by so broad a division that any form which even tended to bridge over the gap was of very great interest: he proposed to give a history of the transformations of this novelty, and to describe it under the generic name of *Pauropus*, in allusion to the paucity of feet.

Prof. Westwood remarked that a certain identity of size appeared to run through particular groups, and this had hitherto seemed to be the case with the Myriapoda as with other Orders; the general run of Centipedes ranged (say) from ten inches down to an inch or an inch and a half; it was therefore very remarkable to meet with one of the almost microscopic dimensions of that exhibited (though the genus *Pollyxinus* made some approximation to it in size), and he should have been inclined to resort to the theory that it was an immature larval form, but for the observations of the President, which seemed to be conclusive on that head.

The Secretary exhibited, on behalf of Mr. W. Rogers, a singularly pale variety of the female of *Hipparchia Janira*, captured at Tooting on the 6th of September; and a specimen of *Rumia cratægata*, bred from a pupa found in an old fence at Tooting during the present year, in which the left fore wing and the right hind wing (with the exception of a slight tinge at their outer margins) were pure white, whilst the body and the other two wings were of the ordinary yellow, and of not less than the usual brightness and depth of colour. The specimen could be regarded only as a monstrosity, or *lusus naturæ*; it was as if Nature had fallen short of colouring matter, and had determined that such matter as she had should be employed as far as it would go in the perfect colouring of certain parts, and should not be equally diffused over the whole surface so as to produce an insect faint and pale throughout; the transverse or cruciform fashion, however, in which the colouring of the parts had been completed was curious.

The Secretary exhibited some Egyptian beans, sent "from a Greek firm," which on the outside appeared perfectly sound, whilst in the inside of many there was "a peculiar worm," some of which were found alive and were forwarded "for the use of the Society." The "peculiar worm" proved to be the perfect form of a species of *Bruchus*.

The Secretary read a letter from Mr. Henry Reeks, dated "Cow Head, Newfoundland, 13th Sept. 1866"; though but recently landed, the writer had already found that the Diptera, in the shape of mosquitoes, black flies and sand flies, predominated far beyond his requirements for obtaining specimens; Lepidoptera seemed scarce on that portion of the island; of Hymenoptera he had seen only one species of *Vespa*, and that not *V. Germanica*, which he saw in Canada.

The Rev. Douglas Timains communicated the following "Note on the appearance of *Argynnis Lathonia*":—

"I observe that at p. 115 of the 'Proceedings' for 1865, the appearance of *Argynnis Lathonia* late in September is mentioned as 'unusual.' As I have been for many years in the habit of taking that species in fine condition regularly from about September 25th to October 5th, and as information respecting its other periods of flight may be acceptable to English entomologists, I subjoin a note on this subject. Early in March hibernated specimens appear. The first fresh individuals emerge from the pupa late in May or early in June; they remain on the wing for some time, but are soon wasted. The second brood appears early in August, and lasts until September. Then, lastly, after this brood is almost over, and represented only by a few very tattered specimens; a small number of fine fresh specimens appear, a sort of third brood, in fact, late in September or early in October. These are generally smaller, and nearly always darker than the preceding broods; and they occasionally hibernate. These remarks apply only to the North of France, where the climate is similar to our own. In the South fresh *Lathonias* may always be seen, at least in October, November, December, February, April and May. I have even known this species emerge from the pupa in January (*not* being forced by heat). The third brood is so regular in its appearance that I used always, when residing in the North of France, to make one or two excursions in October or late in September in search of it. During these excursions I often met with the autumn brood of *Melitæa Dia*, and once I captured *Limenitis Sybilla* on the 1st of October, in very fine condition. I exhibited the specimen at the Oxford University Entomological Society: it differed in no respect from the type of the species."

Papers read.

Mr. M'Lachlan read a paper entitled "New Genera and Species of Psocidæ."

Mr. Edward Saunders read "Descriptions of six new Species of Buprestidæ belonging to the Tribe Chalcophorides, *Lacordaire*." Four of the species were referred to the genus *Chrysochroa*, one to *Steraspis*, and the other to *Cyphogastra*; the whole were exhibited, together with their nearest allies, for comparison.

New Part of 'Transactions.'

The publication (in September) of Trans. Ent. Soc., third series, vol. iii. part 3, being another instalment of Mr. Pascoe's '*Longicornia Malayana*,' and the fourth part issued during the present year, was announced.—*J. W. D.*

ENTOMOLOGICAL SOCIETY.

November 19, 1866.—Sir JOHN LUBBOCK, Bart., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—
 ‘Bulletin de la Société Impériale des Naturalistes de Moscou,’ 1865, No. 4; 1866, No. 1; presented by the Society. ‘On the Origin of Species by means of Natural Selection, or the Preservation of favoured Races in the Struggle for Life,’ by Charles Darwin, M.A., F.R.S., &c.; by the Author. ‘Catalogue of Longicorn Coleoptera, collected in the Island of Penang by James Lamb, Esq.,’ by Francis P. Pascoe, F.L.S., F.Z.S., &c., late Pres. Ent. Soc.; by the Author.

Election of Members.

Percy Bicknell, Esq., of Beckenham, was elected a Member; and G. H. Verrall, Esq., of Lewes, an Annual Subscriber.

Exhibitions, &c.

Prof. Westwood exhibited pupæ of *Thecla Betulæ*, and remarked that the larva does not spin any silken band or girth, but simply fixes itself lengthwise on the leaf.

Mr. A. F. Sheppard sent for exhibition, on behalf of Mr. Gregson, remarkable varieties of *Pieris Rapæ*, *P. Napi*, *Leucophasia Sinapis* and *Anthocharis Cardamines*; also *Gelechia* —?, taken by Mr. Hodgkinson in North Lancashire and by Mr. Gregson in South Lancashire; *Phycita subornatella* of Zeller, taken in the Isle of Man and in Ireland; and an *Acidalia*, respecting which the following extract was read from a letter from Mr. Gregson:—

“I send you *Acidalia veterata*; it may be the same as one named *mancuniata* by Dr. Knaggs from some aberrant stunted second-brood females, but as the rule is to name from normal males (not females) as types, of course his name falls, especially as his diagnosis may mean anything or nothing. I do not know Dr. Knaggs, and of course have not any wish to offend him, but could not accept his new name for my old insect when based upon an abnormal type.”

Mr. Stainton exhibited a living specimen of *Stathmopoda Guerinii* (S. S. 565), and called attention to the peculiar position of the hind legs, which were elevated and stretched out sideways as in *S. pedella* (which received the name of *pedella* from Linné from the peculiar posture of its hind legs) and as in the curious Indian insect *Atkinsonia Clerodendronella*, of which a drawing by a native artist at Calcutta was also exhibited. With reference to the galls in which the larvæ of *S. Guerinii* reside, Mr. Stainton referred to a passage in Réaumur (vol. iii. p. 305) in which these galls on the ‘terebinthæ’ and their *Aphis*-inhabitants were mentioned, the plant which bore them having obtained the name of the fly-tree (*l’arbre aux mouches*) from the pod-like excrescences containing these *Aphides*. Mr. Stainton referred to the possibility of the larva of *S. pedella* being an inhabitant of galls, and thought that the habitat assigned by Linné for the larva “*in alni foliis, subcutanea*” might after all be correct: he quoted a passage from a paper by T. Bergmann, who had furnished Linné with the notice of the habit of *Tinea pedella*, to shew that that observer was aware of the existence of

Lepidopterous larvæ in galls, and finally he quoted a passage from the Proceedings of the Entomological Society of Philadelphia, vol. 5, pp. 143, 144, to shew that Mr. Benjamin D. Walsh had bred a small moth (a *Batrachedra*) in plenty from galls formed by one of the *Tenthredinidæ* on the leaves of willows.—“Each gall containing a single larva, unaccompanied by the larva of the *Nematus* which makes the gall, which it must consequently have destroyed or starved out, either in the egg or in the larva state.”

Mr. E. G. Meek exhibited *Dicrorampha flavidorsana* (Knaggs, MS.),* a species new to Science, from North Devon and Haslemere; a species of *Hadena*, supposed to be new, taken by Mr. Harrington near New Cross; † and *Stigmonota leguminana* from Epping Forest.

Mr. Hewitson sent for exhibition some eggs “found upon the grass near some heath” and which were unknown to him: no member present hazarded a conjecture as to the insect to which the eggs were referable.

Mr. Hewitson communicated the following note on the plumules on the wings of butterflies:—

“When I was last at Bowdon, Mr. Watson, who has been studying the plumules from the wings of butterflies, pointed out to me a group of the *Pieridæ* which he considered ought to be set apart from the rest of the genus, having none of those plumules upon them which abound on the other species. This group consists of *P. Thestylis* of Doubleday, an undescribed species closely allied to it, *P. Clematbe*, *Dd.*, and *P. Autothisbe* of Boisduval. This is confirmed by another distinctive character which these species possess, the costal margin of the anterior wings being strongly serrated. I felt therefore very much interested, when, on paying a visit to Mr. Wallace, who is now studying the *Pieridæ*, I found that he has also set apart this group. I send this notice to confirm an opinion I have expressed elsewhere, that a study of these plumules will produce evidence which ‘will assist in determining the sexes, as well as in testing the worth of nearly allied species.’ I may add that these species have for many years been put together in my collection, having noticed the peculiar serration of the wings.”

Mr. E. W. Janson exhibited, on behalf of Mr. T. J. Harris, of Burton-on-Trent, a specimen of *Macronychus quadrituberculatus*, *Müller*, a Coleopterous insect previously unknown to inhabit Britain, captured by that gentleman, early in the autumn of 1864, in the vicinity of that town.

Mr. S. Stevens exhibited a remarkably fine pair of the rare beetle *Eucheirus Duponchelii*, and a number of small exotic beetles taken for the most part in ants’ nests.

Mr. Weir exhibited a paper-like substance used by a Ceylon ant for lining its nest.

Mr. McLachlan mentioned that the galls on the elm which were exhibited by Mr. F. Smith at the previous Meeting (S. S. 566) had been described by Claude Joseph Geoffroy in 1724, and by Réaumur in 1737, the latter of whom gave figures of the gall: De Geer and Etienne Louis Geoffroy (1764) also referred to it, and the insect was the *Schizoneura gallarum-ulmi* of De Geer.

* Since described Ent. Mo. Mag. iii. 176, and figured Ent. Ann. 1867, fig. 5.

† *Xylina Zinckenii*, Tr.; see Ent. Ann. 1867, p. 136.

Prof. Westwood exhibited a highly magnified drawing of a monstrous individual of *Pieris Pyrrha*, a Brazilian butterfly, from the collection of Mr. Hewitson, of which the two wings on the left side of the body and the fore wing and costa of the hind wing on the right side were coloured as in the male (being white on the upper surface with a black tip to the fore wings, thus resembling *Pieris Brassicæ*), whilst the remainder of the right hind wing was coloured as in the female, thus resembling one of the *Heliconiidae*. Prof. Westwood remarked that such a specimen and such a species afforded ground for some comment on the relationship of those mimetic animals which had recently attracted so much attention, and had afforded Mr. Bates materials for a remarkable and elaborate paper in the 'Transactions of the Linnean Society.' Prof. Westwood, in the first place, considered that every species of animal (except in the instances noticed below) was, so far as its habits and economy were concerned, as *independent* of its so-called allied species as if every individual of the latter had ceased to exist; the same might also be affirmed even of the individuals of each species, except,

- 1st, in the relations of the sexes of each species, and the result of their union;
- 2nd, in the relation between an individual or species and the animal or vegetable upon which it subsists; and
- 3rd, in cases of perfect socialism, where many individuals assist in the economy of the society.

This *independence in economy* was the result of similar independence or *isolation in structural relations*, and implied the *genetic distinction* of each species. But naturalists had found it convenient to assume closer or wider degrees of structural affinity as the basis of their classification, derived from the most distinctive character of their various groups, of whatever rank. Thus the *Mammalia* appropriated to the land, the birds to the air, and the fishes to the water, were characterized at once by the organs which were of the greatest use in enabling them to subsist in their respective elements, and hence a primary importance was attached to the organs of locomotion, and thus groups were formed and characterized, which have been termed classes, orders, families, tribes, genera, &c. It was, however, only upon the greater or less degree of *resemblance*, either of the entire animals or portions of their organs, with those which were associated with them in such groups, that these arrangements were based. Various kinds of resemblance were, however, accepted by naturalists as affording grounds for classification, and while some of these were highly natural, others were very artificial in their nature. Species which agreed together in their most essential characters were regarded as related together by affinity, but others, although bearing a general resemblance, might differ widely in their important organisms: this latter relationship, overlooked by the earlier naturalists, or confounded by them with relations of affinity,* was first clearly pointed out by Mr. W. S. MacLeay, and in fact formed one of the principal key-stones of his system. Instances of this kind of resemblance were then pointed out:

1. Between members of the different kingdoms of nature: Ex. *Byrrhus* and a bit of earth; the larva of *Geometra* and a twig; Orchides and insects.

* As where *Ascalaphus*, with its long-knobbed antenna, was described as a *Papilio*.

2. Between different classes of the same kingdom: Ex. Humming-bird and humming-bird moth; eel and snake.
3. Between different orders of the same class: Ex. *Vespa* and *Ceria*; *Trochilium* and *Vespa*; *Eristalis* and *Apis*; *Tricondyla* and *Condylodera*.
4. Between different sections of an order: Ex. *Papilio* and *Urapteryx*; *Carabus* and *Adelium*.
5. Between different families of a section: Ex. *Papilio paradoxus* and *Danaïs*; *Leptalis* and *Heliconia*.
6. Between different genera of a family: Ex. Species of various genera of *Heliconiidae*.

From the latter instances, the Professor thought it was evident that the relation which had been termed mimetic resemblance was only an exaggerated analogy; and as these analogies (more or less complete) were found to occur throughout nature it might be assumed that they formed an element in creation, and hence that it would be unphilosophical and illogical to refer their occurrence in a more striking degree, in any one instance to a special cause, although the analogy did certainly in many cases seem to be given to the creature for purposes of protection. In the MacLeayian and Swainsonian systems these analogies were considered as existing as tests of affinities, and without regarding or employing them in the sense adopted by the authors of those systems, it seemed to Prof. Westwood that it was necessary to take them into consideration in endeavouring to arrive at a correct view of the general "System of Nature." Applying the preceding observations to the mimicry exhibited by the various *Pieridæ* (chiefly of the genus *Leptalis*) of different species of *Heliconiidae* described by Mr. Bates, Prof. Westwood contended that Mr. Bates's supposition that the imitation had been assumed by the former in order to enable them to subsist (the *Heliconiidae* which possess a strong and disagreeable odour being found to be dominant in South America) was not tenable—

1. Because the mimicking species could barely be said to exist, much less to flourish, in the country where the *Heliconiidae* abounded, "not one in a thousand" having been found by Mr. Bates.
2. Because there still occurred numerous species of white *Pieridæ* in the country of the *Heliconiidae* in a flourishing condition.
3. Because there were vast numbers of other groups and species of butterflies in Brazil equally subject to attacks of birds with the *Pieridæ*, which had never attempted the assumption of forms of the dominant group, *Heliconiidae*.
4. Because there were great numbers of instances of mimicry between the different *Heliconiidae* themselves, which could not have the inducement to mimicry attributed to the *Pieridæ*.
5. Because there were species of *Pieridæ* (such as that to which Mr. Hewitson's monstrous individual belonged) of which only one sex mimicked the *Heliconiidae*. It would require a wide stretch of imagination to suppose that natural selection could have led to the assumption of such mimicry by the individuals of only one of the sexes of a species.*

* *Papilio Aenea* exhibits a double system of mimicry, the male resembling *Danaïs Echeria* and the female *Danaïs Chrysippus*!

6. Because the theory assumed that the *Heliconiidae* existed before the attempt at mimicry commenced on the part of the *Pieridae*; whereas Mr. Bates' statement would lead to the inference that the *Heliconiidae* were so unstable a group that the manufacture of species is still going on among them.
7. Because, according to the doctrine of chances, it was in the highest degree improbable that a casual variation of any given species of *Pieridae* should by constant modification, assisted by hereditary descent, gradually assume the form, colour and markings of another species, especially of so remarkable a type as the *Heliconiidae*. But for an entire group to be simultaneously engaged in such a process, each species tending towards distinct and equally peculiar species, would by a logician be pronounced impossible. The admission that the God of Nature created these species in their present mimetic condition for some wise but hidden purpose disposed of all difficulty.

Mr. Alfred R. Wallace followed, with an exposition of the theory of mimicry or adaptive resemblances as explaining anomalies of sexual variation. He began by pointing out what was meant by mimicry; when moths or beetles so closely resembled the bark of the trees they were accustomed to rest on that it was difficult to distinguish them, or when the curious *Phasmidae* were undistinguishable from the sticks or leaves among which they lived, no one doubted that the resemblance was serviceable to the creature,—it was a protective adaptation. So with the moths of the genus *Trochilium*, which resembled stinging Hymenoptera, but were themselves helpless sluggish creatures, the protection gained was no less clear; and this was termed mimicry, because one insect was, as it were, dressed to imitate another. Mr. Bates first showed how extensively this prevailed in nature, especially among the *Lepidoptera*, and argued that if the imitated forms had any special immunity from attack, the species of other groups which resembled them would to some extent be free from attack also, and would thus gain an advantage in the struggle for existence. He then shewed that the forms imitated always belonged to dominant groups, or those excessively abundant in species and individuals, and therefore presumptively free from the attacks of those insect-enemies that kept down the numbers and threatened the extinction of other species; and that in the case of the *Danaidae* and *Heliconiidae* (the groups most frequently imitated all over the world), the protection was probably the powerful odour they emitted. The theory of natural selection, or the preservation of useful variations, was shown to be fully capable of explaining these facts, and it bore the test of a true theory by also explaining other anomalies as they arose. A species of *Diadema* was then exhibited, in which the female was glossed with blue, while the male was dull brown, thus reversing the usual sexual characters of the genus; and it was observed that the male in insects was usually more active, the female more sluggish; the male gaily coloured, the female dull; and these facts were connected by the consideration that the female, having to carry a heavy load of ova, and to deposit them in places favourable for their development, required protection for a much longer period than the male, whose duty of fecundation was very speedily performed. Thus dull colours were useful to female insects, since it rendered them less conspicuous. It followed that any other kind of protection would be also more necessary for the female than for the male, and, to show that this really was so, a male specimen of the well-known leaf-insect (*Phyllium*, sp.) was exhibited, having none of that wonderful protective

resemblance to a leaf which characterises the female. So in the well-known case of *Diadema bolina*, the male was a richly-coloured blue, white and black insect, while the female was orange-brown, quite differently marked, and resembled most minutely *Danaüs Chrysippus*, which had a range nearly coincident with it. It was suggested that the explanation of the anomalous insect which was the origin of these remarks was, that the female, by acquiring the metallic-blue gloss, was made closely to resemble the common *Euploea Midamus* which inhabited the same localities; it thus gained an advantage in being mistaken for a species which insectivorous birds did not attack.

Mr. Bates was of opinion that the individual of *Pieris Pyrrha* described by Professor Westwood presented simply an instance of unequal hermaphroditism, three-fourths male and one-fourth female. As such it was a mere monstrosity, and had no bearing whatever on the question of the origin of species; the Darwinian theory dealt only with variations that were propagated, and not with monstrosities, the peculiarities of which were not transmitted to their descendants. With regard to those cases where the female sex of a species alone was found to mimic species of other families, the male remaining true to the normal type of its group, he thought it was absolutely necessary that an entomologist should have had opportunities of observing the habits of the species before drawing conclusions concerning them. In all such cases he had found that the females had a different mode of life from the males. In *Pieris Pyrrha* and other allied species the females were confined to the shades of the forest, where they flew near the ground, and were slow in their movements; whilst the males spent the hours of sunlight flying about open places, in company with the males of a great number of other butterflies; they resorted to the forest shades only towards evening or on cloudy days. The cause of the female of *Pieris Pyrrha* having been brought to resemble a *Heliconid* butterfly was the same as that which had drawn out the wonderful mimetic dress of the *Leptalides*; namely the protection which such resemblance afforded them against the persecutions of insectivorous animals. A more remarkable case than *Pieris Pyrrha* was that of *Papilio Torquatus*, a well-known Brazilian butterfly, of light yellow and black colours (in the male). Like the male of *Pieris Pyrrha*, *Papilio Torquatus* (male) spent his days in the open sunshine, whilst the female was confined to the shades of the forest, flying heavily and depositing her eggs one by one underneath the leaves of low trees. The female offered the most striking contrast in colours to the male, being black with white spots and crimson macular belt. It was significant that the dominant forms of *Papilionæ* of the forest shades of tropical America had precisely that style of coloration; but the importance of the present case lay in this, that the female *Torquatus* presented local varieties in the various regions inhabited by the species, the male remaining unchanged, and the varieties were adapted in dress to the species of the dominant *Æneas* group peculiar to the localities. Thus on the Lower Amazons the form of the female was that which had been named *P. Caudius* by Hübner, having a white spot on the fore wing, and a crimson belt on the hind wing, precisely as in the females of the common species inhabiting the same region, *e.g.* *P. Æneas*, *P. Parsodes*, *P. Echelus*, *P. Ergeteles*, &c. On the Upper Amazons, the female was very variable, but the commonest varieties resembled closely the females of the species of the *Æneas* group most prevalent there, namely, *P. Lysander* and *P. Bolivar*: the resemblance to the female *Bolivar* was most extraordinary, for in that species the crimson macular belt was replaced by yellow. Mr. Bates also made some remarks in answer to the objections which Professor

Westwood had urged against the explanation of these imitative analogies on Darwinian principles. He said that the case of the *Leptalis* published by him could not, in his opinion, be explained in any other way. The species of *Leptalis* in question was found in several distant localities; in some of them it existed under one constant local form only, in others it was exceedingly variable, the common varieties showing a wonderful tendency towards a likeness to the predominant species of *Ithomia* of the respective localities. If the dress now worn by the *Leptalis* was given it at its creation, as Professor Westwood believed, how would he explain all these numerous shades of variety found in one and the same locality? To be consistent he must say that each variation was lineally descended from an originally created variety, which would be absurd, as so many species are known to offer numerous similar varieties in one and the same brood. As some of these varieties of *Leptalis* resembled species of *Ithomia* peculiar to the locality more than their sister varieties did, the conclusion was simple and natural, that, the imitation being a rule in all other localities, the process was there at work by which the close imitation was brought about. The less exact imitations were in course of time destroyed without bringing forth progeny, and then the state of things was identical with what was found in other localities, namely, one or more constant forms of *Leptalis* resembling closely their companion *Ithomiæ*.

Dr. Sharp remarked that whether the resemblances under discussion were purely accidental or not could be determined by a numerical investigation, by ascertaining what proportion the cases in which species resembling one another occurred in company bore to the cases in which species with a similar amount of resemblance occurred away from one another. He thought, however, that some of the cases of mimicry might be accounted for on other grounds than those supported by Messrs. Wallace and Bates, for if the Darwinian theory of a common descent were true, then the laws and principles of heredity could be applied to different species, as they have heretofore been to individuals. He proposed four classes, under each of which he believed some of these resemblances could be placed:—

1st. Resemblances purely accidental; for the doctrine of chances would show that if there were in the world a sufficient number of species resembling one another, a greater or less number of these would be sure to occur in company.

2nd. Resemblances the result of a descent from a common parent; for it being understood that a certain character would be transmitted from parent to offspring through an indefinite number of generations, unless circumstances tending to alter it were brought to bear on that character, it could readily be perceived that some species of *Lepidoptera* might resemble one another in coloration, by reason of the resemblance of each to a common parent similarly coloured.

3rd. Resemblances the result of exposure to similar circumstances; for undoubtedly, if the Darwinian theory were true, the coloration of species of *Lepidoptera* must be referred sooner or later to external causes operating on the organism. But the cases where mimicry occurred were cases in which the species, being constantly found together, were necessarily to a very great extent subjected to the same external conditions. Thus in a certain locality a species of *Leptalis* was found closely resembling a species of *Heliconia*, and in another locality a second and allied species of *Heliconia* was found. Mr. Wallace would say that this *Heliconia* differed from the first *Heliconia* because of the changed circumstances to which it was exposed: but with this second species of *Heliconia* was found a second species of *Leptalis*, differing

from the first species of *Leptalis* in nearly the same manner as the second species of *Heliconia* differed from the first, and this was easily comprehensible, its companionship with the *Heliconia* having exposed it to exactly the same disturbing influences.

4th. This class was that to which Messrs. Bates and Wallace referred all these resemblances, and it was the only one that could correctly be spoken of as mimicry; the colour of the *Heliconia*, without any reference to common descent or to the operation of similar external agencies, being the determining cause of the colour of the *Leptalis*.

Paper read.

Messrs. Crotch and Sharp read a joint paper entitled 'Additions to the Catalogue of British Coleoptera, with Descriptions of New Species.' The additions were no less than seventy-one in number, the whole of which were exhibited; of these sixty had been described by continental authors, and eleven, belonging to the genera *Ptilium*, *Atomaria*, *Telephorus*, *Sitones*, *Anthicus*, *Gyrophæna*, *Philonthus*, *Lathrobium* and *Stenus*, were characterized as new to Science.

December 3, 1863.—SIR JOHN LUBBOCK, Bart., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:— 'Mémoires de la Société Linnéenne de Normandie,' Vol. xiii. and xiv.; 'Bulletin de la Société Linnéenne de Normandie,' Vol. x.; presented by the Society. 'Études Hyménoptérologiques,' par J. Sichel; by the Author. 'Memoir of the late Stephen Stone, Esq., F.S.A., &c., of Brighthampton, Oxon;' by Prof. Westwood. 'The Zoologist' for December; by the Editor. 'The Entomologist's Monthly Magazine' for December; by the Editors.

The following additions by purchase were also announced:—'Zoological Record,' Vols. i. and ii. 'British Beetles,' by E. C. Rye. 'British Bees,' by W. E. Shuckard.

Election of Members.

E. T. Higgins, Esq., of 24, Bloomsbury Street, and Andrew Swanzy, Esq., of 122, Cannon Street, were elected Members; H. L. Schrader, Esq., of Shanghai, a Foreign Member; and F. Lovell Keays, Esq., of 4, Harringay Villas, N., and Walter Thornborrow, Esq., of 4, Provost Road, N.W., Annual Subscribers.

Exhibitions, &c.

Mr. Stainton exhibited living specimens of *Gracilaria scalariella*, bred from larvæ mining in the leaves of *Echium vulgare* at Cannes, which he had received a fortnight ago from M. Millière.

Mr. Stainton also exhibited a flat pouch-like gall formed on the leaves of *Pistacia lentiscus* apparently by Aphides, but which was inhabited by a Phycideous larva. This he had received from Mr. J. T. Moggridge, who met with it at Mentone.

Mr. Janson exhibited a collection of insects, chiefly Coleoptera, made by Mr. W. Hume in the neighbourhood of Rio de Janeiro.

Mr. W. F. Evans sent for exhibition a number of insects found in wool imported from New Zealand, accompanied by the following note:—

“Some time ago I brought under the notice of the Society the circumstance of the large number of *Pyronota festiva* found in wool imported from New Zealand. Since then I have requested my friend to continue sending me every insect which might be found in the fleeces from that locality, and now beg to exhibit the various insects, larvæ, animals, a seed and a shell, &c., &c., which have been thus found. The *Pyronota* seems to be in the greatest profusion, and the specimens vary very much in colour.”

Mr. Duer (who was present as a visitor) exhibited a pupa of *Vanessa*, having some extraordinary projections from both wing-cases.

Dr. Sharp exhibited specimens of *Stenus major*, *Mulsant*, taken at Southend: this insect was new to our Fauna, and was hitherto known only as a native of the South of France.

Prof. Westwood mentioned that the late Mr. Stephen Stone, of Brighthampton, had bequeathed his valuable collection of wasps' nests and other natural objects to the Oxford Museum.

Prof. Westwood read the following letter from Mr. Edward Holdsworth, dated Shanghai, July 20, 1866:—

“I trust you will pardon my taking this liberty, but my excuse is this,—reading your revised edition of Dru Drury's ‘Exotic Entomology,’ the other day, I noticed you remarked that no authenticated description of *Actias Luna* had been sent to you: as I have reared several specimens this summer I am able to give you a correct description of this larva. As soon as hatched the worm is reddish brown, with two black bands round its body and several black spots: after the first change it is reddish brown, with fleshy points all over its side and back, each point surmounted with a black spot and one thin white hair. In two or three days the larva changes to a yellowish red colour, a sign that it is about to pass to its second skin: after this change it appears of a light yellowish green colour, the fleshy points (mentioned before) are yellow, and each is surmounted with one brownish hair. On the head are four large fleshy points, which are each surrounded by a black ring, below the extreme tip, which is yellow. After the next change the four major spots on the head and the one at the end of the back are now very large, and have seven short hairs or bristles sticking out at the ends. This is the last change, and the larva is now about two and a half or three inches in length, and fully one inch in diameter. It is fairly common in the neighbourhood of Shanghai, and always found feeding on privet. Those I reared I fed with willow, and they thrived very well on it. It spins a very large cocoon, fully two and a half inches long, but with too much gum about it to allow the silk to be made use of. The caterpillar has down its back two straight lines or ridges of fleshy lumps, which terminate with a single lump placed over the joint of the last leg and in the centre of the back: along each side and just above the legs is a yellowish line, running the length of the body and terminating at the fleshy lump placed on the side of the last leg. The vent and outsides of the two last legs (right and left) are of a very deep plum-colour. In this

change the black rings on the four major fleshy lumps on the head almost fade away, and the caterpillar is well covered all over with thin hairs about one-eighth of an inch long: at the base of each leg is a yellow spot, and over the mouth are four spots or fleshy lumps forming a crescent. Now comes the fourth change, and the larva is now about two inches long: the fleshy lumps on the back and sides have changed to reddish yellow, with a black ring on the top of each lump and four black short hairs also: on each side of the light-coloured line on the side of the larva are little reddish yellow spots, and on the line at the base of each leg are diamond-shaped marks, the inside yellow and the outer mark dark red: the legs and under part of the body are of a beautiful dark green, the sides a lighter green, and the back much lighter; still and covered with white hairs; the legs are covered with black hair, and all the fleshy lumps with four or five black bristles.

"There can be no mistake about the larva I have described, for those I have reared have now come out of their cocoons, and the moth is a white-green, with one spot on each wing, two under wings swallow-tailed; a pink or rather reddish pink line borders the top of the upper wings and crosses the head; the body covered with white down."

Prof. Westwood added that Mr. Holdsworth had mistaken the Asiatic *Actias Selene* for the North American *A. Luna*: the larva of the Indian species was figured in the fifth volume of the Society's 'Transactions' (pl. v.), from a drawing by Captain Hutton: it was desirable to see the perfect insect, as there appeared to be several local races of it.

Prof. Westwood exhibited a series of specimens of *Liparis dispar*, reared from the egg-state by Mr. Briggs, of St. John's College, Oxford, illustrating not only a remarkable variation, according to the nature of the food of the larvæ, but also showing a strong tendency to degeneration. The progenitors of these specimens, two or three generations back, had been obtained wild in Yorkshire, and were of moderate size (not so large, however, as the specimens formerly taken in such quantities at Whittlesea Mere). The eggs were received in October, 1865, and the caterpillars hatched during the first half of the following May. The caterpillars were divided into two groups, those composing one of which were fed exclusively on elm, and the others exclusively on whitethorn. The caterpillars spun up between the 5th and 18th of July. No perceptible variation was observed in the larvæ, cocoons or pupæ of the two divisions. The males in both divisions began to hatch on the 18th of July, but the females did not appear until half the males were already hatched. Almost all the males in both divisions were fully developed, only two cripples appearing out of the thirty-two fed upon elm. The males fed on elm averaged one inch and five-twelfths in the expansion of their fore wings: they were uniformly coloured, much darker and richer than the males fed on the whitethorn, the dark markings on the fore wings were strongly defined, the ground colour of these wings was also darker; the hind wings were reddish brown. The males fed on the hawthorn were considerably smaller, averaging only one inch and two-twelfths in expanse; the ground colour of all their wings was paler and grayer than in the others, but the markings of the fore wings were generally well defined. A few of the males in each division were considerably smaller than the specimens exhibited. In the elm-fed females fourteen out of sixteen were crippled, with their wings not properly developed, and even the other two were

slightly crippled: they were not so large as those of the hawthorn-fed larvæ. Having been impregnated by the males, none of these females deposited eggs, although they pulled off the down from their tails and fixed it in tufts in the box, after the manner adopted by ordinary females of this species in the act of oviposition. Of the white-thorn-fed females less than one half were crippled, and these were not generally so much crippled as the elm-fed females. This experiment seemed to prove that had the species depended solely on the existence of the elm-fed individuals it would have become extinct; whilst the smaller size of the males of the hawthorn-fed group showed that even amongst them (the females of which were so much better developed than the elm-fed ones) the principle of degeneration had set in, and that it would have been very improbable that a distinct phytophagic race or sub-species would have been effectually produced.

Mr. M'Lachlan remarked that *Liparis dispar* was scarcely a fair subject on which to experimentalize and theorize, inasmuch as it now existed in this country only in a semi-domesticated state.

Mr. Bates, referring to the discussion which had taken place at the previous Meeting (S. S. 571) respecting mimetic resemblances, introduced Mr. T. Belt, the gentleman who had favoured him with many of the facts, as to the aversion of insectivorous birds to the Heliconiidae, which were referred to on the former occasion, and in Mr. Bates' paper in the Linnean Transactions.

Mr. T. Belt gave a detailed narration of his observations on this subject, and stated that not only were the perfect insects of *Heliconia* protected by their unpleasant odour, but that the larvæ also were rejected by fowls.

Mr. Stainton remarked that a curious instance of the dislike which birds seemed to have for certain insects had come under his observation some eighteen years previously. When he was attracting moths by light, he had often such numerous attendances that he had frequently captured fifty Noctuæ, or more, in a quarter of an hour; whatever came must be caught, or it was in the way, and, in order to ascertain most readily whether there was anything of value, Mr. Stainton adopted the plan of smothering the whole lot with the fumes of sulphur. When the operation had been performed, more than nine-tenths of the dead insects would probably be *Agrotis exclamationis*. He thus had a vast store of useless dead moths, which he disposed of by giving them to the poultry, the young turkeys particularly enjoying them in spite of their flavour of sulphur. On one occasion, amongst a number of *A. exclamationis*, there was one specimen of *Spilosoma Menthastræ*, and though not one of the young turkeys rejected a single *A. exclamationis*, they each in succession took up the *S. Menthastræ* and put it down again, and it was left, conspicuous as it was, on the ground. This insect, it was well known, had a peculiarly disagreeable odour.

Mr. J. J. Weir had frequently noticed that cage-birds refused the larvæ both of *Spilosoma Menthastræ* and *S. lubricipeda*.

Prof. Westwood stated that a fluid of very disagreeable odour was emitted by those insects from behind the collar; this was probably similar to that ejected by many of the Chrysomelidae. He inquired whether anything of the kind had been observed in the Heliconiidae.

Mr. Bates said that one group of Heliconiidae was furnished at the apex of the abdomen with a process from which, when the abdomen was pressed, a very disagreeable odour was exhaled; but he had never seen any fluid ejected.

Mr. McLachlan remarked, as bearing upon the theory of Natural Selection, that having recently been engaged in an examination of the British Psocidæ, in which family the generic or sectional characters were principally grounded on the neuriation, he had found occasional instances of aberration in the arrangement of the veins: these aberrations consisted in one wing of an insect which belonged to a particular genus or section assuming, entirely or partially, the neural characters of another genus or section; in no case, among several hundred examples, did he find neural variation which was strictly abnormal.

Dr. Sharp offered some criticisms on the theory advanced by Messrs. Bates and Wallace, and argued —

1st. That natural selection was a power of differentiation, and, although it was quite possible that a differentiating power might work so as to produce resemblances, it was at first sight improbable that it should do so; and more evidence was required of the truth of a paradox than a truism.

2nd. It must be shown that animals possessing the so-called mimetic resemblances occurred far more frequently in company with one another than away from one another. But if this were shown, a single case of such resemblance between animals living in different localities would throw doubt on the theory, by suggesting that there was, probably, some more comprehensive law which would account for *all* those resemblances.

3rd. It must be shown that the cause of the rarity of the *Leptalis* was one acting on the insect entirely or chiefly while it was in the perfect state; this had not been done, and it was improbable that it could be; for the most critical periods in the life of Lepidoptera, as regarded their enemies, were the larval and pupal states.

4th. It must be shown that the enemy (whatever it might be) which attacked the *Leptalis* sought its prey principally by the sense of sight; but this suggested another improbability. If the *Heliconia*, which the *Leptalis* resembled, was protected by its nasty odour, surely the bird or other enemy of the *Leptalis* must be very foolish to let it escape when it smelt nice, because it *looked* like the *Heliconia*. The purpose of protection would have been better accomplished by the *Leptalis* mimicking the *Heliconia* in that point by which the *Heliconia* was protected.

5th. A forcible objection to the mimicry theory (as already pointed out by Prof. Westwood) was the rarity of the mimicking species. The theory involved the hypothesis that there was a time when the *Leptalis* differed in pattern from the *Heliconia*; was the *Heliconia* then commoner than now, or as rare? If commoner, it was curious that, when not protected, it flourished better than now, when protected. If as rare, how could it have survived at all before and during its transmutation? It would, perhaps, be suggested that the *Leptalis* was formerly commoner than now, and that some enemy arose, rendering it necessary that the *Leptalis* should find a new means of defence. This, however, was mere supposition, and it was almost impossible to adduce facts to prove it; but supposing it to be the case, why did not the enemy exterminate the *Leptalis* when it did not resemble the *Heliconia*, as (according to the theory) it would now, but for this resemblance. The further supposition must be made, that the enemy was not at first very dangerous to the *Leptalis*, and that in proportion as it grew dangerous, the *Leptalis* grew more and more to resemble the *Heliconia*: it was certainly very fortunate for the *Leptalis* that spontaneous variations, bringing it to resemble the *Heliconia*, should occur in the exact proportion required for its safety.

6th. Again, taking the time when the *Leptalis* differed in pattern from the *Heliconia*, it was said that specimens exhibiting small variations approximating to the *Heliconia* were selected for the preservation of the species. But a small variation in marking would be of no practical service to the *Leptalis*, especially as it was by its nasty odour that the *Heliconia* was protected; to which it might be added that on the theory of Natural Selection no reason or fact was brought forward to induce the belief that variations of the required sort should occur at all.

In conclusion, whilst admitting the impossibility that such a theory as that of mimetic resemblances could ever be shown by facts to be correct at all points, Dr. Sharp was of opinion that the evidence as yet adduced was insufficient to convince an unprejudiced observer. The most that could at present be said of the theory was, that it was very ingenious, and might or might not be true.

Mr. Wallace, in replying to Dr. Sharp, remarked that it was very easy to make objections to any theory, and many of those advanced were of such a general nature that it would require the whole subject to be again fully gone into to answer them in detail. The first objection was one of those vague and general statements which was really no objection at all; it was said that natural selection being a power of *differentiation*, was therefore not likely to produce *similarity*! But natural selection was more than a power of differentiation; it was the preservation and accumulation of *useful variations*; and the moment it became useful to one creature to resemble another, all variations which tended to make it so would be preserved, and would accumulate till an outward similarity was produced. In answer to the second objection, Mr. Wallace admitted that it must be shown that pairs of mimetic insects occurred together more frequently than apart, and maintained that this had been shown: he denied that a single case of mimicry by insects of different countries would discredit the general explanation; since in *one case* the resemblance might easily be accidental, or recent changes of distribution might have parted creatures that once lived together. But, however this might be, even one case of mimicry among insects from distinct countries (as complete and striking as many of those adduced by Mr. Bates and the speaker) had not yet been produced by the opponents of the theory. Dr. Sharp, as a third objection, required proof that the scarcity of *Leptalis* was owing to persecution in the perfect state, not in the larval or pupal conditions; probably Dr. Sharp could not give such proof in the case of a scarce British insect which he had studied for years, and it was quite immaterial to the question. The *Leptalides* alone of all *Pieridæ* were universally scarce in individuals, and almost all the *Leptalides*, and they alone, mimic *Heliconiidae*. As to requiring proof that birds seek their prey by the sense of sight, it was so generally admitted that insectivorous birds captured their prey by sight, that if Dr. Sharp denied it he should rather prove that they do not. In the next place, it was asked, "Was the *Leptalis*, before it resembled the *Heliconia*, abundant or rare? If abundant, then it was better off without protection than with it. If rare, how did it survive at all before and during transformation?" The reply was, that before the *Leptalides* began to mimic the *Heliconiæ* they were more abundant than now, and like nations and individuals, they were better off when they did not require protection, than now when they cannot exist without it. The *Leptalides* were not now the same insects they were then, and their conditions of existence had also materially changed since that remote epoch. Lastly, it was said that as the *Heliconiæ* were protected by their disagreeable odour, a superficial resemblance to the *Heliconiæ* could not be at

first a sufficient motive power to change the species of the Leptalides. Mr. Wallace thought, on the contrary, that it would, because it was self-evident that under all circumstances the "fittest must survive," and any variation which caused but a small percentage of individuals to escape destruction would to that extent benefit that variety, and might, when the species was struggling for existence, cause that variety alone to survive. To deny this would be to deny that insectivorous birds could ever be deceived by slight resemblances, although it was well known that very rude resemblances sometimes deceived animals and even men. Mr. Wallace thought, therefore, that the theory of the "survival of the fittest" (or natural selection) did offer an explanation of almost every fact connected with mimicking insects, and that the objections that had been made to it were of a vague nature, and such as could be made against any theory whatever that attempted to explain the phenomena of organic life. Our knowledge of the present life-history of insects was exceedingly imperfect, and how many questions might be asked concerning them that no one could answer. In the long life-history of species how much more must ever remain unknown; yet because our knowledge was thus incomplete we should be the more thankful for such a theory as that of Mr. Darwin, which supplies a real cause of modification of species, and enables us to correlate so many of the most curious phenomena of organic existences, and to comprehend the series of actions and reactions by which they have most probably been brought about.

Prof. Westwood reiterated, with further illustrations, some of the objections to the theory stated by him at the previous Meeting, and the discussion was brought to a close by a few remarks from the President.

Paper read.

Mr. M'Lachlan read a paper entitled "A new Genus of Hemerobidæ, and a new Genus of Perlidæ." The former was described under the name of *Rapisma*, and the type was the *Hemerobius viridipennis* of Walker; the latter under the name of *Stenoperla*, and the type was the *Chloroperla prasina* of Newman.

January 7, 1867.—Sir JOHN LUBBOCK, Bart., President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—
 'Mémoires de la Société de Physique et d'Histoire Naturelle de Genève,' Vol. xviii. pt. 2; presented by the Society. 'Exotic Butterflies,' Part 61; by W. W. Saunders, Esq.
 'Notes on the Zygænidæ of Cuba,' by Augustus Radcliffe Grote; by the Author.
 'Lepidopterological Contributions,' by Aug. R. Grote and Coleman T. Robinson; by the Authors. 'Note on the Japan Silkworm,' by Captain Thomas Hutton; by the Author.
 'De Tunnelgravende Biller Bledius, Heterocerus, Dyschirius og deres Danske Arter,'
 'Danmarks Cerambyces,' 'Danmarks Buprestes og Elateres,' 'Krebsdýrenes Suge-mund, I. Cymothoræ,' 'Phthiriasis og Mundens Bygning hos Pediculus,' by J. C. Schiödt; by the Author. 'Danmarks Geophiler,' by Bergsøe and Meinert; by the Authors. 'Om Slægten Stalita,' by the Editor of 'Naturhistorisk Tidsskrift.' 'The

'Entomologist's Annual;' by H. T. Stainton, Esq. 'The Zoologist' for January; by the Editor. 'The Entomologist's Monthly Magazine' for January; by the Editors.

The following addition by purchase was also announced:—*Buicht über die Wissenschaftlichen Leistungen im Gebiete der Entomologie während der Jahre 1863 und 1864*, von Dr. A. Gerstaecker; Erste Hälfte.

Election of Subscriber.

Samuel Alfred Davis, Esq., of 4, Durham-place West, Holloway, was ballotted for, and elected an Annual Subscriber.

Exhibitions, &c.

Prof. Westwood exhibited a number of butterflies, chiefly *Heliconiidae*, collected by Dr. Burchell in Central South America, and observed that the Burchell collection was peculiarly interesting, from the fact that each specimen bore a ticket giving the date (sometimes even the hour of the day) and the precise locality of capture, so that the range of particular forms could be traced, and the limits thereof fixed with accuracy.

Mr. M'Lachlan asked the reason why humming-bird hawk-moths (*Macroglossa stellatarum*) chased up and down stone walls, banks, or cliffs, but particularly stone walls near the sea; dozens of specimens might frequently be seen so doing, and in positions far removed from any flowers. No answer was given to the inquiry; but Mr. F. Smith mentioned that he had had sent to him from the Isle of Wight some clay nests extracted from a wall, which eventually produced hymenopterous insects, but which were said by the sender to be formed by the humming-bird-hawk. It seemed probable that his correspondent had noticed the moths performing in the manner described by Mr. M'Lachlan in the neighbourhood of the nests, and had thence erroneously inferred that the nests were the workmanship of the moths.

Mr. A. E. Eaton mentioned that he had, during the past season, found near Lyndhurst a hornet's nest in a very unusual situation, namely, in a bank composed of sandy soil where no wood was near. The colony was a strong one, and the nest so deeply imbedded in the bank that he had been unable to take it.

Mr. M'Lachlan said that, since the previous Meeting, at which he had stated that *Liparis dispar* existed in this country only in a semi-domesticated condition (S. S. 579), he had written to Mr. Doubleday on the subject, and that gentleman replied as follows:—"I do not know of any locality in Britain where it occurs in a state of nature, and I am strongly of opinion that it has only been found in the fens round Yaxley; when I was there in 1839 the larvæ swarmed on the gale and dwarf sallows. English was there in 1846, and he found the larvæ pretty common, but not so abundant as they were in 1839. Haworth simply says, '*In salicetis, rarissime.*' I believe all the specimens which were placed in the old collections were continental, or reared from eggs brought from the Continent, as they were very different from the fen specimens, and just like those found in France; and I think most of those now bred in this country are of continental origin. I once collected a great quantity of the pupæ in Paris, and brought them home to Epping. The following spring I turned out thousands of larvæ, but they did not establish themselves, although I saw plenty of the moths in one field in August. In 1846 I obtained an immense quantity of eggs from moths bred from larvæ brought from Yaxley. Next spring great numbers of

larvæ were turned out on the dwarf sallows growing among the gravel-pits in the Forest. A few larvæ were seen the following year, but not afterwards. It is very strange that a moth which frequents towns and suburban gardens on the Continent should be found in such a very different locality here. In France the larvæ appeared to feed principally on the elm."

Prof. Westwood repeated that Mr. Briggs' specimens (S. S. 578) were the descendants, only three or four generations removed, of ancestors which were captured in a state of freedom.

Captain T. Hutton, of Mussooree, communicated a "Note on the Japan Silkworm," in which he expressed his opinion that *Bombyx Yamamai* is nothing more than a hybrid between a sickly and degenerate race of *B. Mori* and the little monthly-worm, *B. Sinensis*, and repeated his conviction that, for the purpose of renewing the European stock, experienced entomologists should be deputed to visit different parts of China, with a view to the re-discovery of the silkworm in its natural state of freedom.

Papers read.

The following papers were read: "Choreutidæ and Crambina collected in Egypt in 1864, and Crambina, Pterophorina, and Alucitina collected in Palestine in 1865, by the Rev. O. Pickard-Cambridge; determined and the new species described, by Professor Zeller; the German descriptions translated into English by H. T. Stainton;" and "A Monograph of the genus *Hestia*, and descriptions of forms not hitherto noticed; with a tabular view of the Danaidæ and remarks on their natural affinities. By A. G. Butler, F.Z.S., Assistant in the Zoological Department of the British Museum."

New Part of 'Transactions.'

Part 4 of Vol. v. of the "Transactions" (third series), published in December, 1866, and being the fifth Part issued during that year, was on the table.—*J. W. D.*

A Review of Systems. By JAMES EDMUND HARTING, Esq., F.Z.S.

SETTING out with the conviction that all systems must be artificial, and that there is no "natural system," properly so called, we experience some difficulty in making choice of one upon which to classify our British birds. In a former communication I alluded to having studied eighteen "systems" with a view to select the most simple and natural. The notes which I made at the time, now several years ago, have lately turned up with some other memoranda, and thinking that they may perhaps be of service or interest to others who may be in search of a system, I send them to you. As you will observe they are arranged chronologically, commencing with the system of Willughby, he being the first naturalist who treated the study of birds as a science, and the first who made anything like a rational classification.

Willughby's, 1678.—Although by no means complete, yet unquestionably the best that had hitherto been promulgated, and meritorious from the fact of its being framed nearly two centuries ago, with no other assistance than the meagre compilations of preceding authors. It is also without doubt the basis on which the ornithological classification of Linnæus was founded. Nevertheless, it is confused, obscure and full of errors, especially as regards the water birds. The distinction, however, between the land and water birds is well preserved.

Brisson's, 1760.—Unnecessarily long, no less than twenty-six orders and one hundred and fifteen genera, and too fantastical in the characteristics of the orders. Moreover, birds belonging, naturally, to the same genus have been placed not only in different genera, but even in different orders.

Linnæus's, 1766.—Violation of natural order in division of land or perching birds into two orders placed wide apart, and the introduction of aquatic orders between. In this respect inferior to Willughby. Nevertheless the best artificial arrangement.

Latham's, 1790.—Commendable for its brevity, nine orders, but containing what would now be considered mistakes. For instance, *Recurvirostra* placed in order *Palmipedes*, instead of *Grallatores*: *Glareola*, although placed by some (and amongst others Latham) in order *Grallatores*, and by others in order *Palmipedes*, should, I take it, be found in neither, for having some characteristics of each, as well as others peculiar to itself, it should more correctly hold a separate and intermediate rank.

Lacépède's, 1799.—Longer even than *Brisson's*, having no less than thirty-nine orders and one hundred and thirty genera. Very confused, too, and difficult to remember, and this is an essential point. The characteristics of the various orders appear too fantastical, and several orders might very well be comprised in one, for in the chief features they agree, but apparently because they do not agree in one or two trifling details *Lacépède* has separated them.

Dumeril's, 1806.—Somewhat similar to the more recent classification of Yarrell, but differing in several respects and inconsistent in many others. Yarrell has five orders, *Dumeril* six, the additional order being that of "*Grimpeurs*" (*Scansores*), from which, however, he omits *Certhia*, and places it not only in a different order, but in the same family as *Alcedo*! He omits *Sylvia*, *Parus*, *Motacilla* and

Anthus from the Dentiostres, and also omits *Alauda* from the Conirostres, and places *Parus* (Dentiostres) and *Alauda* (Conirostres) in one and the same (a distinct) family. He has *Rallus*, *Hæmatopus* and *Fulica*, in the same family, and makes other mistakes of a like nature. Perhaps they ought hardly to be called mistakes, if we consider that in a classification of this kind there is no standard with which to compare, and therefore the author is at liberty to classify according to his own ideas of the requisitions necessary to constitute affinity between species, genera, &c. Still it appears somewhat odd to place a bird like the coot, which is lobe-footed, with comparatively short legs, wings and bill, in the same family with the oystercatcher, a wader with long legs, wings and bill, together with the rail, which has nearly opposite characteristics, and very different habits. Such a system, therefore, to say the least of it, is unsatisfactory; and to several other systems the same term may be applied.

Meyer's, 1810.—Eleven orders; ten families. Commendable for brevity and general divisions, and comparatively easy to remember.

Illiger's, 1810.—Seven orders; forty-one families; fifteen genera. Complicated with unnecessary and erroneous divisions: for example, why place *Sturnus* and *Sitta* in the same family?

Temminck's, 1815.—Fifteen orders; eighty-nine genera; three hundred and thirty-seven species (British). Much to be commended. Very clear and precise in general divisions. Frequently adopted in correspondence with continental naturalists, as being the system usually followed abroad.

Blainville's, 1815.—Fantastical and long since discarded.

Vieillot's, 1816.—Does not apply with sufficient exclusiveness to British birds. In length outrageous; five orders, nine tribes, fifty-eight families, two hundred and seventy-three genera, and heaven knows how many species.

Cuvier's, 1817.—Very long, with unnecessary divisions and distinctions. Moreover, does not apply with sufficient exclusiveness to British birds.

Macleay's, 1818.—“The Quinary System,” or “System of Circles.” The first and fundamental principle inculcated by Macleay and his disciples is, that all Nature moves in a circle, and that the series of beings is unbroken; and, secondly, that each group and each species has a double affinity. Everyone of the higher groups has a binary division, *viz.* the normal or typical, and the aberrant, the former

containing two, and the latter three of the five sub-divisions of which each of the higher groups is composed.

"We cannot here explain the doctrine of *analogy*,—which is wholly distinct from *affinity*,—but we will give an instance of it. The hedge sparrow in the Sylviadæ represents the house sparrow in the Fringillidæ; that is, the one bears the same relation to the Sylviadæ that the other does to the Fringillidæ, and hence they are said to bear an analogy to each other. The whole zoological series, before arranged in a simple chain, according to this system revolves in an almost infinite number of circles around man, from whom they may be said to degrade on all sides." So says a disciple of Macleay.

An opponent of his system writes as follows:—"In Natural History we have always good reason for suspecting methods, and still more for suspecting principles. The doctrine of *types*, if I comprehend it aright, is one of those suspicious principles, being evidently a shoot from Plato's wild theory of pre-existent ideas, or the archetypes of all things, and more directly borrowed from the atheistic system of Robinet. His doctrine bears that Nature's grand aim was to make man, and being incapable of doing so at once, undertook an apprenticeship (*apprentisage*) of experiments, by making various types of his several organs; such as the hand-shaped roots of some of the Orchis family, the brain-stone coral, and the stink-horn (*Phallus fœtidus*), of many of which he gives figures. "A stone," he says, "an oak, a horse, a monkey, a man, are only graduated variations of a *prototype* which has begun to be realized by the least possible elements. A stone, an oak, a horse, are not men, but they can be regarded as *types*, more or less conformable to the same primitive design, and they are all the product of the same idea, more or less *developed*."

In other words, we are expected, upon this principle, to dismiss the conviction (which seems to me an inevitable one) that every object in Nature is a distinct and independent creation of an omnipotent Creator, and accept in its stead the belief that an *inferior* being is capable of transforming itself to a *superior* one, "by development," independently of divine agency!

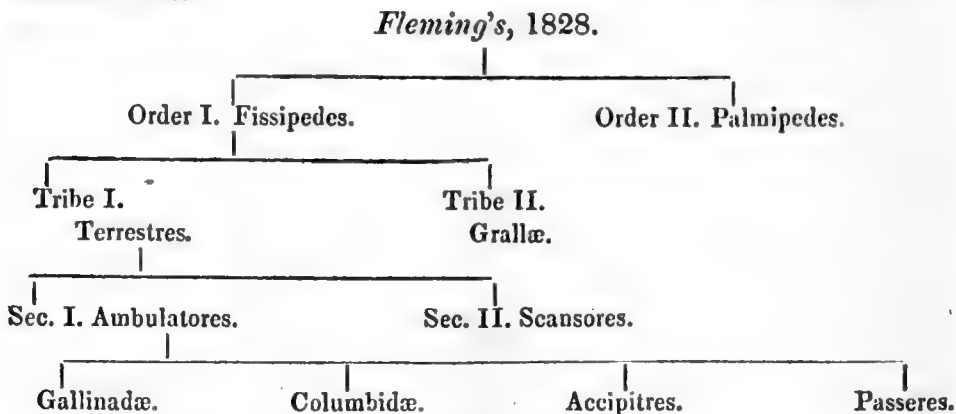
The idea that in Nature there is a chain of succession, and that between every alternate species there is one which forms a connecting link between them, is no doubt a beautiful one, but it is at the same time only speculative, and an examination of facts shows us that the chain cannot be continued unbroken. In this respect, therefore, the

system is a defective one, but it is mainly upon the principles which it inculcates, as tending to atheism, that I take leave to reject it.*

Vigors, 1825. The Quinary System, just mentioned, discovered by Macleay in 1818, was elucidated by Vigors in 1825, in a paper "On the Affinities which connect the Orders and Families of Birds" published in the 'Transactions of the Linnæan Society.' Enough has been advanced, however, in the last page to show the objections to this system. It embraces five orders of the same denomination as Yarrell's—*viz.* Raptores, Insessores, Rasores, Grallatores and Natatores. But not content with dividing an order into families, genera and species, the author must needs subdivide orders into tribes; tribes into families: families into sub-families (which in some cases are very numerous); sub-families into genera; and these again into species: so that the division seems endless, and is in consequence confusing. This classification includes five orders; five tribes; forty-five families; sixty subfamilies; four hundred and four genera! the number of species we have not attempted to count.

Latreille's, 1825. Deux sections; 1re terrestres; 2me aquatiques; 7 ordres; 30 fam.; 252 gen.! Je crois que c'est un système dont on n'a pas fait beaucoup d'usage. On y trouve plusieurs fautes: par exemple, M. Latreille a placé le genre *Mésange* (Dentirostres) en même famille que le genre *Alouette* (Conirostres).

Lesson's 1828. Scarcely applicable without much substitution to British birds.



* I have thus dilated upon the "Quinary System," because in a recent number of the 'Zoologist' it was stated, in a review of my 'Birds of Middlesex,' that I had adopted it in that work. So far from that being the case, I entirely disapprove it. Moreover, I was careful to state, in the Introduction, whose system it was that I had adopted.—*J. E. H.*

This table speaks for itself. The division of orders into tribes, tribes into sections, sections into families, which in their turn are subdivided into genera and species, renders the system unnecessarily long and complex.

Yarrell's, 1845.—This system is now probably too well known to require comment. Its simplicity, comparative brevity and perspicuity will commend it to every British naturalist. To those yet unacquainted with the classification therein adopted the following outline will be useful:—

Order I. RAPTORES.

- Family I. Vulturidæ.
 " II. Falconidæ.
 " III. Strigidæ.

Order II. INSESSORES.

(Group 1. *Dentirostres*.)

- Family I. Laniadæ.
 " II. Muscipidæ.
 " III. Merulidæ.
 " IV. Sylviadæ.
 " V. Paridæ.
 " VI. Ampelidæ.
 " VII. Motacillidæ.
 " VIII. Anthidæ.

(Group 2. *Conirostres*.)

- Family I. Alaudidæ.
 " II. Emberizidæ.
 " III. Fringillidæ.
 " IV. Sturnidæ.
 " V. Corvidæ.

(Group 3. *Scansores*.)

- Family I. Picidæ.
 " II. Certhiadæ.
 " III. Cuculidæ.

(Group 4. *Fissirostres*.)

- Family I. Meropidæ.
 " II. Halcyonidæ.
 " III. Hirundinidæ.
 " IV. Caprimulgidæ.

Order III. RASORES.

- Family I. Columbidae.
 " II. Phasianidæ.
 " III. Tetraonidæ.
 " IV. Struthionidæ.

Order IV. GRALLATOIRES.

- Family I. Charadriidæ.
 " II. Gruidæ.
 " III. Ardeidæ.
 " IV. Scolopacidæ.
 " V. Rallidæ.
 " VI. Lobipedidæ.

Order V. NATATOIRES.

- Family I. Anatidæ.
 " II. Colymbidæ.
 " III. Alcadæ.
 " IV. Pelecanidæ.
 " V. Laridæ.

J. E. HARTING.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from S. S. 548).

NOVEMBER—DECEMBER, 1866.

Shorteared Owl.—Have heard of six of these owls having been lately shot in this neighbourhood, their bold and fearless natures

rendering them peculiarly subject to the attentions of the roving gunners, and it is too probable that out of the many which visit the eastern counties in the autumn and winter, but few return to their northern breeding-grounds. I saw one of these owls on the 3rd of November, near the Humber, perched on a sod, walking up to within three yards before it took wing, and then it scarcely flew out of gunshot. No wonder that such numbers find their way to the local bird-stuffers.

Common Buzzard.—Lately inspected a magnificent specimen of this now rare bird, which had been trapped, by the gamekeeper, in a neighbouring parish: it was an old bird, and in very rich dark-coloured plumage.

Little Stint.—This species has been far from uncommon during the autumn on the "flats." On the 3rd of November noticed several feeding in company with dunlins and ringed dotterels, but was not able to get near them. On the 5th I had a very favourable opportunity of watching one of these minute *Tringæ*, in company with a dunlin and ringed dotterel, actively engaged in probing the soft "warp" at the foot of the embankment, and now made certain of procuring a specimen, yet, although the No. 5 marked a ring all round it, the little fellow flew off apparently uninjured.

Green and Golden Plovers.—The excessive and long-continued rains have attracted immense flocks of these plovers to our marsh lands. During the winter of 1865-66 immense numbers visited the marshes, yet this winter they are greatly in excess: this is more particularly the case with the golden plover; indeed during the last fifteen years I never recollect seeing anything like the congregated thousands at present to be found in this district. So far both species have resorted almost exclusively to the grass-lands, to the neglect of their usual haunts, the fields of young wheat. I did not observe any golden plovers in the marshes before the 31st of October: for a few days after their arrival they are not difficult to get at, but soon learn the range of a gun. On the 14th of November I attempted to stalk, by walking up the drains, a flock of about forty, feeding in company and mixed up with a number of peewits, but the latter birds were far too wary to permit a near approach, and were off on the first alarm, rising in a body, but much to my surprise the golden plovers remained; they were still considerably out of shot, and as there was no possible means of getting nearer, I got out of the drain, and walked up openly to within thirty yards before they rose, leaving, however, five of their number behind

as the result of their temerity. On the 22nd an extraordinary flight of golden plovers passed over the marsh district from south to north; for four hours, namely from 10 A. M. to 2 P. M., flock after flock came over; hardly had one lot disappeared in the north before another thin long line appeared on the southern horizon, and so on with slight intermissions during the four hours I was on the look out: occasionally a mob of green plovers came on, all crowded together like a body of irregulars following the line: all flew just out of shot, and

“Vainly

I marked their distant flight to do them wrong,”

and only succeeded in bringing down a single bird. The golden plovers flew with wonderful regularity, generally in a long single line, broken here and there by the arrow-head formation these birds so frequently use. Before a long period of severe weather, it is not unusual to see great flights of plovers hour after hour, for nearly the whole of a winter's day, crossing the Humber and proceeding southward, but I never at this season saw them passing southward in such unusual numbers. *Query*.—Were these birds attracted by the excessive floods which at that period prevailed in the northern counties.

Snow Bunting.—First observed November 7th. Since this period have seen large flocks of these buntings feeding in the stubble-fields near the Humber.

Woodcocks.—Have this autumn been very plentiful on the east coast. On comparing notes with my fellow sportsmen I find all agree in this respect, that we have had a large and unusual arrival of woodcocks in this neighbourhood. There was a considerable arrival as late as the 23rd of November. I remarked in my last notes the great disparity in the weight of these birds on their first arrival. I lately weighed two which exhibited this difference in a remarkable degree, one weighing twelve ounces and the other only seven ounces.

Bohemian Waxwing.—November 9th. Saw a fine male of this species in the shop of a bird-preserved at Grimsby. It had been shot three days previously on the coast, in the adjoining parish of Cleethorpes, by a fisherman.

Stonechat.—Saw a single bird, a female, in the marsh on the 17th, and two on the 22nd of November. This bird is very rarely seen in this neighbourhood except during the winter months.

Chaffinch.—I lately passed along a hedge-row containing a large flock of chaffinches, entirely consisting of females, with one exception, one fine old cock bird. It is not unusual to see an old cock bird or

two in the flocks of female chaffinches. The sexes, as far as my own observations go, separate into flocks about the first week in November.

Pinkfooted Goose.—December 8th. A goose belonging to this species was brought to me to-day; it was shot in the marshes adjoining the Humber, and, as the man informed me, was one of a small flock of three he had seen on the grass-lands. This bird differs in some respects from the dimensions given by Yarrell of *Anser brachyrhynchus*, and independent of Yarrell's description I cannot find any other reliable authority wherewith to compare it. It appears to have been unknown to Montagu, and Gould gives no figure of the bird; neither is it mentioned in the late Mr. Wheelwright's Synopsis of the Scandinavian Fauna. I have copied the following remarks from my note-book; they were made the day after the bird was shot:—"Anser brachyrhynchus. Total length of goose from tip of bill to end of tail, thirty-one inches and a half. From carpal joint to end of second quill, eighteen inches. Length of bill, one inch and eleven-twelfths; depth of bill at base, one inch and one-twelfth. Length of head, from base of bill to back of head, two inches seven-twelfths. Nostrils oblong; length of nostrils, two-fifths of an inch. Lateral laminæ very apparent. Iris, hazel-brown. Bill pale waxy pink, deeper along the lateral edges. Nail and a space running backwards from the nostrils to the base of the bill, bluish black. Second quill the longest; first and third nearly equal; fourth much shorter. Tail of fourteen feathers. Closed wings extending about one inch and a half beyond tail. Tail dark gray, broadly edged and tipped with white. Feet very muscular; joints large; hind toe very small. Feet and legs pale fleshy pink; claws bluish black, white at the base. The late Mr. St. John, who was well acquainted with these geese, remarks, "It is a finer bird, and more distinctly shaded and marked, than the bean goose; the general colour of the plumage is lighter." Also "When a flock of bean geese alight on a field to feed, it may be observed that a small company of the birds often separate and feed alone; these will be found to be the pink-footed."

Great Spotted Woodpecker.—December 10th. When shooting to-day I saw one of these scarce woodpeckers in a small plantation of oak in this parish: being anxious to procure a specimen, I tried for some time to get a shot at it, and might have done so had it not been for the pertinacity with which the bird, the moment I brought my gun up, dodged behind the trunks and greater branches of the trees, when

the tree was between us flying off to the next; it seemed perfectly aware of its value, and thus led me on from tree to tree, till it finally left the plantation. I saw either this bird or another in the same place on the 22nd of the month.

Food of Wood Pigeon.—In the crop of one, shot November 1st, found seventy-six grains of barley; in the gizzard, partly digested barley with the usual accompaniment of sharp angular stones. November 27th. One shot late in the evening: in the crop four hundred and thirty grains of barley, one charlock seed and a few fragments of red clover plant; gizzard, barley and small stones.

December 24th. Heard a blackbird and a thrush in full song in the garden this morning.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
December 28, 1866.

Ornithological Notes from Norfolk. By HENRY STEVENSON, Esq.

(Continued from Zool. S. S. 442).

SEPTEMBER, 1866.

*Summer Warblers.**—Blackcap and garden warblers, with their young, seen in the garden up to the 12th; spotted flycatchers to the 14th; swifts last seen on the 7th of September.

Hobby.—A fine adult male, killed at Fundenhall on the 5th, had the remains of a young nightjar in its stomach, and about the same time an immature male was killed at Filby.

Gray Phalarope.—Although such an unusual number of these birds were obtained during the autumn in the South of England, I know of but one observed in this county, which was killed by an old woman with a stick, as it fluttered about in a small pool of water on Swardeston Common, near Norwich.

Starlings hawking for Flies.—I can fully confirm the statement of my friend Mr. Barton, of Fundenhall (Zool. S. S. 310), as to starlings occasionally imitating the actions of house martins, when hawking for flies in the higher regions of the atmosphere: knowing his accurate observation of small matters, I could not doubt the fact, although at that time the habit had never come under my own notice. On the

* A strange error occurred in my previous notes (Zool. S. S. 441), "*Migratory warblers*" being printed for "*migratory waders*," in describing godwits and knots.

30th of September, however, after several weeks of cold and wet, we had a glorious day,—warm as in June,—and the deep blue of the sunny sky was veiled rather than hidden by the light fleecy clouds. About noon, whilst enjoying in the garden this delightful change, I observed several starlings high up in “the blue vault of heaven,” circling round and round, after the manner of house martins, and like them, too, occasionally rising a little in their flight, as if to seize some insect a little overhead. Occasionally they would take a wider sweep, and passing at a lower level over the garden, convinced me of their identity, although the total absence of martins at the time (they having retired to the river side for the day) left no ground for doubt. Their actions were certainly different to anything I had ever noticed in this species before, the usual flight of the starling having, for the most part, a settled purpose about it—a hurrying to and fro, whether singly or in parties of three or four. When in flocks, also, their turnings and twistings have a marvellous precision of movement, whilst in this instance no two birds appeared to take the same course, and yet for two hours, at least, they remained on the wing, for no other purpose that I can imagine than that of hawking for flies, judging from the exact similarity of their movements to those of house martins under the same circumstances.

OCTOBER.

Greenfinch.—A very pretty variety of this species was shot at Blofield on the 5th. The plumage of this bird, a female, was almost entirely white, a few pale yellow tinges only appearing on the upper wing-coverts, back and breast.

Swallows and Martins.—A young swallow seen on the 11th, and house martins observed for the last time near the city on the 20th, sharp frosts having set in at night, and the leaves falling fast.

Great Gray Shrike.—One killed about the beginning of the month, and another, an adult male, on the 23rd, near East Harling Station.

Arrival of Autumn and Winter Migrants.—Woodcock, September 30th; wild geese seen on the 1st of October; hooded crow, October 3rd; fieldfare, October 28th.

Cormorant.—A female, in immature plumage, but having the ovaries very distinguishable, was shot near Ormesby Broad on the 12th. Mr. T. E. Gunn, of this city, who preserved this specimen, informs me that the stomach contained no food, but attached to the inner membrane were a number of live worms, eight of which

measured about two inches in length each, and were with difficulty removed.

Sky Lark.—A perfectly white specimen was killed near Loddon on the 28th; but in this bird the eyes were of the normal colour.

NOVEMBER.

Winter Visitants.—Lesser redpoles have been extremely plentiful, with a few pairs of mealy redpoles as well. Siskins and bramblings have also been netted by our Norwich birdcatchers, but not in any unusual quantity. Just previous to the first fall of snow, on the 19th, a large number of fowl arrived on the coast, and on the 17th, as I learn from an old marshman at Surlingham, more fowl rose from the reed-beds on the Broad, in the early morning, than he had seen for some years: he described them as looking like "great banks of birds," as they loomed through the fog, and the fact of its having blown hard, out at sea, for a day or two, would account for their resting more inland. Teal have been very plentiful, and it is a good season for woodcocks; a fair sprinkling of snipes, but the marshes much flooded.

Goosander.—A fine adult female shot near Belagh on the 24th.

Little Gull.—Mr. Frere, of Yarmouth, informs me that an immature bird of this rare species was killed on the beach during the first week in November.

Shore Larks.—A pair of these rare birds, male and female, were shot at Beeston, near Cromer, on the 28th. The female was evidently a bird of the year, having a very small gorget, with the tips of the feathers edged with light brown, and the patches on the cheeks very indistinct. In the male, the larger bird of the two, the black on the head and gorget was more pure, and the sides of the head tinged with yellow: the absence, however, in both, of the rich vinous tints on the shoulders gave them a very sky lark looking appearance about the upper parts of the plumage. The stomachs contained a number of small black seeds and pebbles.

DECEMBER.

Bittern.—The usual migration to our coasts, at this season, of these former residents on our Broads has just commenced. One was killed at Barton on the 1st, another at Wroxham on the 12th, and a third at Barton on the 14th.

Great Gray Shrike.—Another specimen, an adult female, was killed at Hickling on the 5th.

Great Northern Diver.—Two or three immature birds have been killed during the last few weeks at Salthouse and Burgh.

Waxwing.—Since the winter of 1849-50 we have had no such flight of waxwings on this coast, or indeed in any part of England, as have appeared from the 17th of November to the present time. It is impossible at present to do more than allude to their arrival, as every day brings particulars of more seen or procured in all parts of the county, but chiefly on the coast or its immediate vicinity. Some idea of their numbers may be gathered from the fact that I know already of more than ninety specimens killed, of which I have seen about sixty myself; and from a careful examination of so large a series I hope to be able to explode certain errors as to plumage, the number and position of the wax tips on the wings, the difference, or rather want of difference, in the sexes, &c., which have been repeated again and again by British authors.

HENRY STEVENSON.

Norwich, December 18, 1866.

Ornithological Notes from West Sussex.

By W. JEFFERY, jun., Esq.

(Continued from S. S. 517).

OCTOBER—DECEMBER, 1866.

Gray Phalarope.—The month of September last was characterized by an unusually large immigration of this interesting little "lobefoot." On looking through Mr. Knox's Catalogue of Sussex Birds, I find that we had a very similar visit from them in September, 1846 (just twenty years ago), as the following extract will show:—"During September, 1846, after a severe gale from the south-west, which lasted for some days, great numbers of gray phalaropes suddenly appeared on various parts of the coast of Sussex; many were shot, others taken in a dying state, and some killed with stones as they were swimming among the breakers near the shore. They appeared almost simultaneously at Pagham, Worthing, Shoreham, Newhaven, and Hastings. By far the greater number of these phalaropes were birds of the year." ('Ornithological Rambles,' &c., 3rd ed. page 241.)

Blackheaded Gull.—October 9th. Shot a specimen of this gull, in which the rich pinkish or purplish tint, at times observable in this and

other species of the genus, was very marked, the whole of the under plumage, as well as the *shafts* and parts of the webs of the first two or three primaries, being suffused with it. This was an adult bird, but the change to winter plumage was not completed, the head having a considerable portion of the black still remaining.

Swallow.—A few swallows seen throughout the first fortnight in October. On the 21st I saw sixteen, but none after.

Spotted Crake.—This is a scarce bird in western Sussex. On the 10th of October I saw one which had been shot near Chichester a few days before.

Lesser Redpole and Siskin.—The lesser redpole has not appeared so numerous as usual this autumn and winter; first seen on the 12th of October, and again on the 23rd, in company with some siskins, feeding on the seeds of the alder. The latter bird, as a rule, is the scarcer of the two; I have known a whole winter pass without so much as seeing or hearing of a single example.

Osprey.—October 17th. An osprey was shot, just within the borders of the adjoining county, Hampshire, *viz.*, near Havant, on the above date. This is recorded in the 'Field' of November 3rd.

Buzzard.—November 7th. A specimen of the common buzzard was brought into Chichester Harbour on board a coal vessel. It was captured by means of a noose, it having alighted in the rigging of the vessel in the dusk of the evening, when off Flamborough Head. It is a small specimen, probably a male, and as the legs are greenish flesh-colour I imagine it to be a bird of the year. Since November 7th it has been in my possession, and is doing well. It throws up "crams" of feathers, bones, and other indigestible matter, the same as owls do.

Hoopoe.—A hoopoe was shot early in the month of October, and sent to a Chichester taxidermist for preservation.

Black Redstart.—A female black redstart was observed in October at a place near the village of Ashling, where a pair were seen and the female shot in October, 1862.

Ring Dove.—The ring dove or "wood pigeon," as it is here called, I noticed passing N.W. in flocks of forty or fifty soon after daybreak, several mornings in succession, about the 21st of November.

Divers.—Both the great northern and the redthroated divers have been scarce this winter. In November a few were killed, and sold for plume manufacture. I have seen, at one house in Chichester, the breasts of fourteen little grebes cut up the middle and sewn together

for "trimmings." The "dabchick," as it is here called, is fast becoming a scarce bird.

Dunlin and Ringed Plover.—November 26. For about a fortnight after this date flocks of dunlins and ringed plovers have frequented open fields inland. This has, perhaps, occurred principally during the times of high tide, but I have never known them come inland so much before.

Spotted Redshank.—November 28th. An example of this species was sent from Selsey to Chichester for preservation. It had nearly attained the full winter plumage.

Forktailed Petrel.—December 6th. Again with south-westerly gales the forktailed petrel has occurred, a bird of this species having been shot in Bosham Harbour, and brought me on the above-named day. Excepting that the ends of the primaries and tail-feathers were stubbed, it was in excellent plumage. It has been frequently stated that the petrel, when excited or enraged, has a habit of spurning oil from the curiously formed bitubular nostril. In skinning the present example I discovered a cavity in the skull situated in front of the brain and between it and the bill, connected with the nostrils and the mouth: this cell contained a thick oily matter, having a peculiar smell—a smell which one cannot help noticing in skinning or even handling one of these birds. What the object of this oil-cell can be is to me a mystery. Can it be a means of offence or defence? Perhaps it may be of service in *water-proofing* the plumage of a bird, which one would imagine must require something of the sort, being so constantly on the water; yet, does the petrel spend more time on the water than some other of our *Natatores* that it should require this extra provision? Mr. Yarrell states that the storm petrel on being taken from the nest vomits a quantity of pure oil, which is carefully preserved by the fowlers, and the bird allowed to escape. Another specimen of the forktailed petrel is recorded in the 'Field' of December 15th, by Mr. G. Dawson Rowley, as having been captured in a "ham and beef shop" in Brighton.

Power of Imitation in Birds.—Dr. Saxby mentions (Zool. S. S. 447) the wheatear as possessing the power of imitation to an astonishing degree. Not living in their breeding haunts I have never noticed this in the wheatear, but in other birds I have. Mr. Legge observes of the sedge warbler (Zool. 9836) "In its curious little warble it imitates, in quick succession, the sparrow, the lark, and the swallow, but seems to have a decided preference to the twitter of the first-named

bird." I have seen it somewhere argued that this is no imitation, but only the natural notes of the bird. I do not altogether hold with this argument, yet, what would be the note of the sedge warbler if we "cut out" these so-called imitations? Last spring, soon after the arrival of the summer immigrants, I was more than once deceived, by hearing the sedge warbler exactly imitating the call note of Ray's wagtail. Two years ago a pair of starlings built their nest in the roof of our house, and the male bird used frequently to bring in the notes of other birds in his attempt at singing. Just after the wryneck arrived he caught its note, and would utter it so plainly that it was scarcely distinguishable from the real note of the wryneck. At another time he would give very clearly, but not so loudly as his tutor, several notes of the missel thrush's song. The swallow's "dick richard" also came in amongst others, and I once heard him trying the call-note of the partridge just after having heard that bird, but at this he did not succeed so well. It is noticeable, also, that the lark especially and also the song thrush in the vicinity of the sea vary their song occasionally with the ringed plover's whistle. I have often, when on the coast, looked about me for the last-named bird, only to find that the note proceeded from a sky lark soaring above, or from a thrush in some distant tree.

W. JEFFERY, JUN.

Ratham, Chichester, January 11, 1867.

Erratum.—At page 514, line 20, for "Bishopstowe" read "Bishopstone."

Oological Notes from South-East Essex.

By W. VINCENT LEGGE, Esq., F.Z.S.

THE following are from observations taken during the nesting season of 1866.

Raven.—As this bird is becoming comparatively scarce now, I was surprised to find three pairs nesting within a distance of six miles of this station. They seem to have preferred the lowlands, probably on account of the large trees growing in the hedge-rows, as all three nests were built in tall elms so situated. I have not yet met with any ravens in the uplands of this part of the county, but down here they both breed in the season and remain during the winter. The first nest found was on the 16th of March, and was built high up in the fork of a large elm. The foundation of the nest was very large and straggling,

the whole of the fork being filled up by it; the sticks forming it were heaped up in an irregular mass, and on the top of this was placed the body of the nest, made of stout sticks and lined with a great quantity of wool, hair, grass and old rags. The interior was ten inches in diameter and six inches deep. The nest contained five eggs far advanced in incubation, and one of them (probably the last laid) differed considerably in size and colour from the rest. Four of them were of a pale sea-green, clouded and blotched with bluish gray, and spotted and marked over this with olive-brown, and measured two inches by one inch three lines. The fifth egg was of a pale *blue* ground, lightly clouded with blue and with a few spots of olive, and was much smaller. These birds do not exhibit the same amount of courage in defending their nests as the carrion crow does. The female, in this instance, left the nest when I was some distance off, and both birds then flew round and round, uttering loud croaks, but did not come near while I was inspecting the nest. The carrion crow will come within a yard of the intruder's head. As I was leaving the locality of the nest, the male bird, which I had watched and knew by its much hoarser croak than the female, followed me, performing the most wonderful turnings and tumblings in the air, and swooping down with a loud boom in front of me. This continued until it imagined it had by so doing enticed me away from its home. I noticed the following day that the female recognized me at a great distance, leaving her nest and flying towards me. The other nests were similar in every respect to this: one contained five eggs, and the other I did not ascend to. It is singular that the raven, otherwise a very courageous bird, should make so little attempt to defend its nest. I noticed one of these birds last month amusing himself, at a great height in the air, with three kestrels, who were flying round him and dashing themselves against him: he seemed to care but little for their overtures.

Carrion Crow.—The carrion crow is very plentiful here, breeding both in the tall trees in the low lands and in the extensive woods near Hadleigh. They do not nest as early in the season as they are said to do: I paid particular attention to this point during the past season, searching the above-mentioned woods several times in March, and did not find a single new nest. On the 6th of April I found the first new nests, one of which contained four eggs; the others were not finished. Two or three nests I found near the garrison, built in the elms of the hedge-rows, were begun at the latter end of March, but did not contain eggs until the middle of April. The eggs vary much in size, some

being short and round, while others are long and oval. Those I have found here have been generally of a sea-green ground, blotched and clouded at one end with light brown, and marked and spotted over this with blackish spots. In a nest there are always some of a darker ground than the others, and generally one or two with the markings crowded at the small end instead of the large end. Some are of a green ground, lightly streaked with olive-brown and no dark markings. One variety I have, in which the ground is a dark sap-green or greenish brown, mottled closely all over with lilac-brown and dark brown spots, and measures one inch ten and a half lines in length by one inch two lines in breadth. The smallest size I have found them is one inch six lines in length by one inch two lines in breadth. The nest of the crow is built of *green* twigs, in most cases torn, as is the case with that of the rook, from the surrounding branches of the tree, and is nearly always placed in the fork of a tree at some distance from the top. The sticks are cemented together with clay, and the lining of the nest is wool, hair and rags, the interior measuring eight inches in diameter. The crow easily deserts its nest if it is climbed up to during its building. A pair near here built three nests in the same tree, deserting each as it was discovered and examined.

Rook.—The rooks are as numerous here as they are in any part of England: within six miles of the garrison there are seven rookeries. They commenced to build this year in the second week in March, and by the end of the month a good many were sitting. In one or two instances, where I could observe the birds at work all the day long, I noticed distinctly that the old nests were repaired, but the majority of the nests were new, the old ones being pulled down during the first week in March. Though I found a great variety among the eggs I examined, I did not meet with any of the very small eggs which rooks sometimes lay. Many have very deep markings at the smaller end, and eggs in the same nest with this sort have no markings at all save a few straw-like streaks of brown. I have one egg in my collection the ground colour of which is yellowish green.

Barn Owl.—On the 24th of March two eggs of this bird, which I have in my collection, were found laid on a truss of hay at the top of a barn: they were some distance apart from one another, and the little girl who found them placed them together. The next day I visited the spot, and found a third laid, and the whole carefully covered up with straw. These three I took, and on the following morning two

more were laid. This is the first instance I have heard of in which this bird has thus concealed her eggs.

Lapwing.—There is a small marsh of about two hundred acres, near the island of Potton, where these birds, in company with the common redshank, are in considerable numbers. They have a habit of scratching a great many holes in the ground before they choose one for their nest. I visited the marsh on the 23rd of March, and found numbers of these holes scratched, mostly in the driest parts of the ground, but no nests. I visited it again on the 7th of April, and did not succeed in finding any eggs, though many of the holes were lined with a few bents and small dry chips of cow-dung. A day or two afterwards there were eggs in several nests. I find that these birds, as also the common redshank, do not arrange the eggs in the nest with their small ends in the centre of it until they begin to sit: until the complement is laid they are placed anyhow. I have heard the fanning noise made by the male bird, when dashing about in the air, at a distance of nearly half a mile.

Redshank.—The redshank lays somewhat earlier than the peewit. I found the first eggs (three in one nest) on the 7th of April. They are very clamorous birds, quitting their nests when one is yet a long way off, and thus rendering them difficult to find. No bird that I have seen conceals its nest so cleverly as this one: it is formed in the centre of a green tuft of grass. The herbage is beaten down to form at once the lining and the bottom of the nest, and the surrounding blades are carefully bent over the top, completely hiding the nest from view. The bird enters and leaves it at the side, closing up the openings when frightened from it. The only traces of the nest are a few tracks in the surrounding grass, where the bird has entered and departed from it. A shepherd said to me, "I always knows, sir, there's a tooke's nest in the grass when I sees these 'ere little roads in it." The eggs, as far as I have observed, are always four in number, but they vary much in character: they are mostly of an ochre-yellow or a greenish yellow ground, with bluish gray spots, and then blotted all over, especially at the larger end, with sepia: they are not so thick as the eggs of the peewit, measuring from one inch nine lines to one inch eleven lines by one inch three lines. The latter I have found one inch six lines in breadth, and they are more pointed. One clutch of redshank's eggs had the ground greenish white, with minute specks of brown over the whole surface, and then large blotches and clouds of sepia round the larger end: these were very much pointed, and the shells were very thin.

Little Grebe.—On the 3rd of May, after a short search, I came upon a nest of this bird containing four fresh eggs. It was composed of a mass of weeds heaped up on the surface of the water, and kept firm by the surrounding reeds. The eggs were covered over with wet weeds, and were warm. Ground colour of eggs dirty yellow; two of them had some clouds of brown: they were oval in form, and measured one inch seven lines by one inch. The interior of the shell was deep green. On the 28th of May I found another nest, in which were six eggs and the broken shell of another. The bird had not been hatched more than one hour, yet it was nowhere to be found; it had decamped into the water. A proof occurred here of the small amount of warmth required to hatch and keep alive the young "chick." I took away two eggs, one of which was addled. On arriving at my rooms I laid the eggs in the bath, and was surprised to hear periodical chirpings coming from one of the eggs. Not having time to open the egg then I put it away, and on taking it up the following evening, thirty hours after I had taken it from the nest, I was still more surprised to hear the chirpings again. Assisted by a friend I liberated the hardy little monster, and wrapped him up in flannel: he departed this life, however, on the following day. The egg was not kept in a warm room.

Coot.—The coot is very plentiful on the fresh water in the Essex marshes: they are especially numerous on the lagoons at Pitsea. On the 5th of May I found their nests in tolerable numbers in that locality. I may remark that though I have never surprised a coot or a moorhen on her nest, I have never found their eggs covered up, as is sometimes stated. The habitation of the coot is constructed in water sometimes of a foot in depth, its foundation resting on the roots of the reeds among which it stands. Those I have found have generally been neatly made *columns* of about two feet in height from their foundation; that is, in water of a foot in depth, they rise about a foot from the surface. The materials of the column are reeds cut up to the required length, and laid crosswise on one another around a common centre with great regularity. The lining is a mass of cut-up reed-blades, and the diameter of the column is about ten to twelve inches. It is an admirable example of bird-architecture. The largest number of eggs I have found in one nest is eight: they were of a stone-yellow ground, speckled and spotted all over with small spots of dark brown, slate-blue and bluish black, and measured two inches two lines by one inch five lines. The eggs of the coot do not seem to vary much.

Moorhen.—This bird is equally numerous with the coot in this neighbourhood. I have found their nests in great numbers this year. Some of them are mere slovenly masses of rushes lying on mud-banks among the reeds; others are neatly constructed columns standing in water, and supported by reeds growing round them, in every respect similar to those of the coot. One nest I found was a beautifully constructed abode, with the green blades of the reeds which supported it bent down and woven together, forming a dome about a foot above the eggs. Had the bird an eye for the beautiful, or did she fondly imagine thus to shield her devoted head from the April showers? I am sure that sometimes the eggs in these nests are the produce of more than one bird, as I have found what I am convinced were two distinct clutches in the same nest. In one instance the contents of a nest were as follows:—four eggs, small and of oval form, measuring one inch five lines by one inch one line; ground whitish yellow, spotted sparingly with lilac, lilac-red and brownish red: six eggs, large and of a tapering form; ground colour reddish yellow, with large irregular blotches of dark brown-red and dark slate-colour; dimensions one inch nine lines by one inch three lines. These, every one will see, were the produce of two distinct birds. The eggs, however, vary very much in size and number. I have found twelve in one nest, and four sat upon in another.

W. VINCENT LEGGE.

Shoeburyness, December 19, 1866.

Rabbits breeding in January.—When ferreting rabbits the other day, the ferret got amongst a litter of young rabbits not more than four days old. The nest was placed at a considerable depth in the ground, not as is usual near the surface, and was almost completely composed of rabbits' fur. We had to dig out the ferret, which, after a sumptuous mid-day meal, had lain down beside its victims to indulge in a restorative snooze. The surface of the ground was frozen to the depth of four inches.—*John A. Harvie Brown; Dunipace House, Falkirk, January 15, 1867.*

Hare feeding on Hawthorn-berries.—Upon examining the contents of the stomach of a hare I shot lately, I found it consisted almost entirely of the berries of the hawthorn: this, I suppose, must be accounted for by the absence of their usual food, the snow at the time being six inches in depth.—*George Mawson; Moor Side, January 5, 1867.*

Roughlegged Buzzard in Dumfriesshire.—I was in my birdstuffer's premises in Edinburgh (Mr. Small's, George Street), and saw a most magnificent specimen of the roughlegged buzzard, which struck me as being considerably above the usual size and of unusually dark colour, almost approaching to black. Mr. Small gave me the

following particulars concerning its capture:—"The bird was shot at Billholm, near Laugholm, Dumfriesshire, and is the property of Mr. Richard Bell, of Billholm. It was shot by him on the 1st of December, whilst soaring over his head, and it fell, bursting its gizzard, which was quite gorged with food." I regret I cannot send you the measurements of this bird, as I believe they were not taken before its being stuffed.—*John A. Harvie Brown; Dunipace House, Falkirk, January 15, 1867.*

Cornish Specimens of the Jerfalcon and Redfooted Falcon.—The specimen of the jerfalcon which you have recorded in the pages of the 'Zoologist' as having been killed at Port Eliot, near St. Germans, has come into my possession, as well as of the redfooted falcon, killed on Wembury Cliff, in Plymouth Sound. The former is nearly an adult male bird, with the head and throat entirely white, as well as the whole of the tail-feathers, both upper and lower surfaces: from the lower part of the throat to the whole of the belly are sparingly distributed drop-like spots pointing downwards; these are largest on the flank above the thigh-feathers, which are also pure white; the shape of these spots underneath may be best described by likening their shape to the down-stroke of a note of admiration. Mr. Vincombe, from whom I had the bird, assured me that the cere and legs were blue: he had it alive for some time. The redfooted falcon is a very good and adult male, in the dark slate plumage with tile-red thighs.—*Edward Hearle Rodd; Penzance.*

Remarkable Shot.—On the 8th of the present month a somewhat remarkable shot was made here by a bird-preserve, whilst out seeking specimens: he saw three blackbirds sitting on a bush, the weather being very warm and the sun shining brightly: on the same bush, above the blackbirds, but in close quarters with them, sat another larger bird quietly preening his feathers: he shot at the larger bird, and great was his surprise to find that he had shot a beautiful male kestrel together with one of the blackbirds. This fact, I think, does away with the supposed propensity of the kestrel preying on birds, or at all events it shows that the blackbirds had no such fears in this instance: I believe, in the many cases in which the kestrel has been detected feeding on birds, they have found them dead.—*Stephen Clogg; Looe, Cornwall, January 10, 1867.*

Our Gray Shrikes.—Since writing last month on the subject of two kinds of gray shrike, I have been able to refer to Wilson's 'American Ornithology.' I find he speaks of two kinds, viz.—

1. American Shrike (*Lanius excubitor*, Wilson; *L. borealis*, Vieillot).
2. Loggerhead Shrike (*L. carolinensis*, Wilson; *L. ludovicianus*, Linnæus).

The first seems to be the same bird as our *L. excubitor*, though he speaks of only one white spot, and of crescentic marks on the under part of the male, which would only apply to the immature bird. This, however, is not surprising, as no one seems to have noticed the marked distinction which appears to exist between the male and female of our *L. excubitor*, the former when adult having *two* spots, the latter *one*. The second of the above-named species seems to me to be this species, of which Mr. Rodd's bird (described before as No. 2) may prove to be a specimen; the only noticeable difference being that *L. carolinensis* has a line of black in front of the head over the beak, which No. 2 has not; but the absence of this may perhaps be connected for by age and sex. The above confirms my former remark that the various notices in the 'Zoologist'—with one exception (Zool. 2650), where the mistake is calling the smaller bird *L. borealis*—refer simply to examples of *L. excubitor*. Still it appears probable that when the distinction is

understood, the loggerhead shrike (*L. carolinensis*)—if that is the bird in question—may prove to be of occasional occurrence in this country. In Bree's 'Birds of Europe' this bird is said to be identical with *L. meridionalis* of Temminck.—*J. H. Jenkinson ; St. Mary's Vicarage, Reading, January 15, 1867.*

Curious Processes in the Tail of the Redwing.—During the late severe weather I have shot many redwings here, and in one specimen have noticed a very peculiar abnormal condition in the tail, the feathers of which have well-marked projections in the direction of the shafts, fully one-sixteenth of an inch beyond the web of the feather, reminding one of similar projections in the tail of the Australian spinetailed swift. This peculiarity, in my specimen, may certainly have been caused by the feathers being worn away by abrasion ; but the regular form of the projections goes against this view. I have thought this occurrence of sufficient interest to send it to you for publication, for possibly similar projections may have been observed in other birds.—*G. Norman ; Ben Rhydding, Yorkshire, January 13, 1867.*

Black Redstart at Looe.—A black redstart, in winter plumage, was shot here last Saturday, and another was seen the week before.—*Stephen Clogg ; Looe, Cornwall, January 10, 1867.*

Waxwings in Peebleshire.—I saw in Mr. Small's shop four or five waxwings (I forget the exact number), which were shot near Peebles on the 7th of December and on the 8th instant. The gamekeeper who shot those on the day first named evidently did not know the value of the birds, as he offered to procure some more for Mr. Small, if the latter would stuff one for him, stating that there was a large flock of them near Peebles at that time. However, the flock did not wait for him, and he did not succeed in getting any more.—*John A. Harvie Brown ; Dunipace House, Falkirk, January 15, 1867.*

White Linnets.—The following abstract from a Scotch local newspaper may be of interest to some of your readers. It is taken from the 'Kircudbrightshire Advertiser,' of Friday, the 28th of December last:—"Among the many flocks of gray linnets in the neighbourhood of Selby, the bird-catchers have observed several pure white linnets, and though every exertion has been made to catch them they have hitherto eluded their snares, though many of the gray linnets have been caught." I do not know at all if pure white linnets are rare or not, but I suppose that they are not very common.—*A. Clark-Kennedy ; 14, Princes Gardens, Princes Gate, W., January 4, 1867.*

Late Swallow's Nest.—A friend of mine, residing at Walton-on-the-Naze, Essex, has sent me an account of a pair of swallows having built a nest at that place so late as the latter end of November last. These birds (or it was believed the same pair) began a nest about that time, at one of the houses on the Terrace, near the sea : from finding that spot too cold, or from some other cause, they soon abandoned it, and went to a farm-yard a little further inland, where, inside a barn, they not only completed a nest, but three eggs were laid in it, after which the birds disappeared. The persons at the farm had watched them with great interest, being, curiously enough, nearly related to those inhabiting the house on the Terrace, where they were first observed to be building : it was supposed by them that a threshing-machine, coming into the yard, eventually frightened the swallows away, but it is perhaps more probable that their natural instinct, though so late in its promptings, at length caused them to migrate, in spite of the attraction of a new home. I perceive it is stated in Yarrell's 'British Birds' that even the young birds are now and then thus forsaken when hatched

in autumn, but there is no mention in any work to which I have referred of so late a nest as this one. My friend was kindly allowed by the farmer to have possession of the deserted nest and eggs. I have not seen them, but an experienced naturalist, on examination, pronounces them to be certainly those of the chimney swallow, the eggs, however, being nearly one-third smaller than the average. Would this peculiarity render it likely that the birds belonged to an early brood of the same year? A young egg-collector has just remarked to me that several species of birds do lay the first year, and that the eggs are very small; he instanced the wren, thrush, &c. The nest mentioned above was detached whole, being built on a rafter against the wall; the back is, of course, flat: it is composed of mud, with a few feathers and a little hay; the eggs, as usual, spotted with pale red. On being blown for preservation, their freshness proved them to have been recently laid.—*S. King; Sudbury, January 14, 1867.*

The Willow Grouse and Red Grouse perching.—I am glad to be able to remove one point of difference, which was considered fatal to my views of the identity of the Norwegian willow grouse and the British red grouse. In a communication (Zool. 8955) Mr. Reeks, quoting from the late Mr. Wheelwright, asks "whether the red grouse had ever been known to perch on a tree." In my reply (Zool. 9045) I stated that if the willow grouse really did perch, and the red grouse did not, then this fact alone would go strongly against my views of their identity. At that time, it is scarcely necessary to say, I was not aware that the red grouse did ever perch on trees, but now I am glad to be able to remove this doubt. A few weeks ago I was shooting on the moors here above Middleton Hall, and while discussing various habits of the grouse with the keepers, accidentally mentioned the subject of grouse perching. To my great surprise three of the keepers informed me that this habit is by no means infrequent: the head keeper, pointing at the time to a plantation of Scotch pine called "Ling Plantation," said he had often seen grouse perching there: this was corroborated by others present. I have spoken with other shooters in this district who have also seen them perching in trees, so that I think this point of supposed difference must fall to the ground. It strikes me as being very strange that when this subject was being discussed in the pages of the 'Zoologist' no one should have come forward to settle this interesting point of perching, for surely it must have been observed by sportsmen in different parts of the country.—*G. Norman; Ben Rhydding, Yorkshire, January 13, 1867.*

Note on the Occurrence of Quails near Belfast.—I saw this day in Leadenhall Market six quails, which I was informed were part of a consignment of eight, which had arrived together from a locality in the neighbourhood of Belfast. The birds I saw were in excellent condition; four were in the usual adult winter garb, the other two had speckled throats, which I presume was a remnant of their immature dress. The occurrence of eight quails in one locality in England at the same time, in winter, would certainly be an uncommon event; whether such a circumstance is equally rare in Ireland I know not, but it appears worth recording.—*J. H. Gurney; January 4, 1867.*

Plumage of the Oystercatcher.—I shot two specimens of the above-mentioned bird at Hunstanton, in Norfolk, last autumn, one of which was rather larger than the other, and had a white gorget of about one inch and a half in length, and about two inches in breadth; while the smaller bird had its neck, to the breast, of a pure glossy black, and its bill was more black at the end than that of the other bird. Mr. F. O. Morris

says that there is no difference in the plumage of the male and female oystercatcher. Can this difference be sexual, and if so, which is the male and which the female?—*A. Clark-Kennedy.*

Great Snipe near Dorchester.—My brother shot a specimen of the great snipe (*Scolopax major*) near here on the 29th of November last: it was flushed in a reed-bed, at the same time as six or seven common snipe, but was lying apart from them, and at once attracted attention by its superior size and different mode of flight. The dimensions of this bird (a male) are as follows:—

Length from end of tail to base of bill	-	-	9 $\frac{3}{4}$ inches.
" from base of bill to tip	-	-	2 $\frac{1}{4}$ "
" from carpal joint to end of wing	-	-	5 $\frac{2}{10}$ "
Extent of wings	-	-	17 $\frac{1}{2}$ "

Agreeing with those given by Yarrell and Montagu, but the weight seems to be less than usual, as it barely weighed six ounces, although in fair, but not fat, condition.—*James Shorto, jun. ; High East Street, Dorchester, December 13, 1866.*

Unusual Occurrence of the Smew.—I saw to-day, at one dealer's in Leadenhall Market, fourteen smews, which he informed me he had received from Holland. Never having seen so many specimens of this bird in one lot before, I think the circumstance worth recording, especially as I have only seen one specimen in the market previously this winter, a female, also from Holland, on the 6th of December last. The fourteen which I saw to-day were partly males and partly females, but the former were all in immature plumage.—*J. H. Gurney ; January 16, 1867.*

Blackthroated Diver at Wickham, Hants.—On the 9th of January, heavy gales and squally weather having prevailed during the week, a beautiful male specimen of the blackthroated diver (*Colymbus arcticus*, Linn.), in full winter dress, was shot upon the ornamental water at Rooksbury Park, Wickham, Hants, by Mr. Orred's keeper, and forms a valuable addition to my collection. In the stomach was a fresh roach 4 $\frac{3}{8}$ inches in length and 2 $\frac{1}{4}$ inches in girth, together with a few small pebbles.—*Arthur W. Crichton ; 11, Eaton Place, S.W. ; January 16, 1867.*

Sabine's Gull in Cornwall.—A specimen of Sabine's gull, in the first year's plumage, was shot in November, on the River Lynter, St. German's, Cornwall, by Mr. Spencer, naturalist, and is now in the possession of the Rev. A. Furneaux, St. Germans.—*Alan Furneaux ; St. German's, Cornwall, January 23, 1867.*

Ornithological Notes from Stirlingshire.—Bramblings appeared here, and in still greater numbers at Kilsythe, on or about the 7th of this month (January), and disappeared on the 9th or 10th. Various ducks are numerous on the Frith of Forth, and considerable numbers of mallard, teal and widgeon come up our river (the Carron) every day. Bean geese have come far inland this winter; yesterday a flock, or "gaggle," alighted on a frozen pond near this, seven miles from the Frith; they generally, in this part of the county, do not come further inland than Latham Moss, which is only three miles from the sea.—*John A. Harvie Brown ; Dunipace House, Falkirk.*

Correction of an Error.—Zool. S. S. 559, 17th line from top, for "hind throat," &c., read "head, throat," &c.—*N. Cooke ; Liverpool, January 8, 1867.*

A Birdsnesting Trip to the North of Ireland.

By HOWARD SAUNDERS, Esq., F.Z.S.

"THERE must still be eagles in Ireland; they can scarcely have become extinct since Thompson's time," exclaimed a friend, as we rose from marking off on the map the breeding-places specified in the 'Birds of Ireland.' So after some discussion we agreed to make a tour of inspection the following April, and judge for ourselves. But, alas! the course of birdsnesting seldom runs altogether smooth; May had come before I could leave town, and I was then obliged to give up the exploration of what I imagine to be some of the best localities, and respecting which I hope to be able to give further particulars next year.

Having been joined at Omagh by my friend R., an enthusiastic young Irishman on his first collecting trip, I proceeded to make diligent inquiries from a correspondent in the town, who had twice forwarded me a pair of richly marked golden eagle's eggs "in the yelk." I was sorry to learn that the individual who used to obtain the eggs, and who was known as the "antiquity," *i. e.* antiquary, was lately dead, and that the knowledge of the eyrie had been confined to himself and a herd who used to assist him, whose very name was unknown. Doubtless the eagles were still breeding in their old haunts, but the amount of ground to be gone over was so vast, and the chance of success so problematical, that after carefully weighing the *pros* and *cons* of the matter, we decided to push on at once for the Horn of Donegal, where, in Thompson's time, at least two pairs of the sea eagle used to breed, besides the golden eagle in the mountains inland.

Arrived at Dunfanaghy, the nearest village to Horn Head, we lost no time in securing the services of an experienced old "duller," the local name for a fowler who "dulls" or catches sea-birds by slipping a horse-hair noose fastened to a long rod over their heads, as they sit on the ledges. He assured us that we should certainly get the "game-hawk," as the peregrine falcon is termed, but as for eagles he shook his head. There was, he believed, a pair or two of the mountain eagle, up by Muckish and Errigal, and the sea eagle was not unfrequently to be seen in the winter, but they had not bred in their old quarters for four or five years; he could only show us where the nest used to be.

Early next morning we were afoot, and crossing the stone bridge which unites Horn Island with the mainland, a walk of about four miles brought us to the summit of the cliffs to the west of the Head. The day was clear and the view from the cliffs magnificent; Tory Island, distant some nine or ten miles, appearing almost within swimming distance, whilst to the left the cone of Errigal, upwards of 2400 feet in height, and the huge burial-mound-shaped Muckish, stood out boldly against a blue sky rivalling that of Italy. Looking down the sweep of the stupendous cliffs, a white line could be discerned not far from the water's edge; it was the breeding-place of the kittiwakes, or "pettyvanes," as the "duller" called them, but from our elevation it was impossible to say without the aid of a glass whether the whiteness arose from birds or was merely a dung-covered ledge. On the water and on the ledges of the cliffs we could distinguish puffins (algunners), razorbills (furrins), guillemots (murrins), whilst the herring gulls everywhere studded the sea-pink covered projections of the rocks. Cormorants were drying their wings on the rocks at the base, and we could distinguish shags nestling in the crevices of the lower cliffs. As yet, however, the bulk of the birds had not come up from the sea, and only the shags, cormorants and herring gulls had commenced laying, with here and there a few puffins.

"There's always a hunting hawk's nest by here," said our guide, and the next moment the angry bark of the tercel, as he dashed out to sea from his post of observation, warned us that we were encroaching upon his domain. The falcon sat very close, and it took a good deal of stoning to make her bolt, which at last she did, but so quietly that we were no wiser than before as to the exact position of her nest. Nothing could be done without a rope, and, as this was merely a reconnoitering expedition, we had not brought one. However, as luck would have it, we had scarcely proceeded half a mile along the cliffs when we came upon one of the best cragsmen of the Horn, who was smoking his morning pipe with a companion, and who at once started to fetch a rope from a cottage not far distant; so an hour found us back again, preparing to lay siege to the eyrie of the peregrine. The rope had a "fishy" appearance in more senses than one, being full of joins and splices; however, if it would bear Jem, the owner, it would certainly bear any one else of our party, so down he went first to try it. The falcon now became greatly excited, screaming wildly and swooping within a few yards of our heads, so it was clear that the nest was close by; still the rope was not long enough to

enable us to get past a projecting crag, below which (correctly as events proved) Jem declared the nest was. He promised to bring us the eggs next morning, "before we had our eyes open," as he intended to try it with a longer rope of his own, and with this we were compelled to rest contented for the present. Whilst climbing the cliff Jem said he had found a "jackdaw's" nest, and putting his arm into a crevice handed me a young chough, only some three or four days hatched, and which we put back as it was of no use. The chough is tolerably plentiful along the cliffs; the natives call it the "jackdaw," and the true jackdaw (*C. monedula*), also common, they call the "graydaw," much preferring the latter as a pet. I begged them to wage war against the grey-pated fellows, who would otherwise in time drive away the "red-legs," as they have already done at Beachy Head; but I am sorry to say my hearers by no means sympathized with my dread of such a contingency: the chough would not talk or whistle as the gray-pate would, and in fact he was altogether a "duffer."

Proceeding along the cliffs to the Head, our guides pointed out the spot where the sea eagle had last built. The nest, remains of which were still visible, was situated on a ledge, about thirty feet from the summit of a stupendous cliff, but completely looked into from the point on which we were standing, though a chasm many hundred feet in depth, but not more than thirty yards wide, separated us from it. A more foolish place it would be difficult to conceive, for the nest could easily be reached by a rope from above, and I am not sure that a very daring cragsman could not have crept along a lower ledge, holding on to the upper one, until he got to the nest, though of course a single slip would have been certain death. I was not surprised to hear that the birds had been robbed year after year, until they finally left the place: one or other of the old birds had often been shot, but the survivor always managed to find a fresh mate, until at last the persecution got too hot. The men told me that there used to be a sea eagle's eyrie in Tory Island, but that they had not seen the "Tory eagle," as they called him, all that spring, so they supposed he must have been destroyed. I may here remark, that from what I now and on subsequent occasions learned, I imagine the sea eagle to be rarer in the North of Ireland than the golden eagle. The vulturine propensities of the former cause him to fall an easy prey to the temptation offered by the strychnined carcase of a sheep placed for hooded crows, foxes and other "vermin;" he also gorges himself with food, and is thus more easily approached than his nobler congener;

still I fear that poison has had more to do with his extermination than all the trapping and shooting.

The day was hot, and after a pipe and a chat about the eagles we stretched ourselves out on the fragrant turf, and were soon fast asleep. After a time I heard indistinctly through my slumbers the hacketting of an angry tercel, which grew more and more clear, until I sat up, rubbed my eyes, and behold, it was no dream!—for there, above my head hovered the author of all the noise, whilst the female's longer note mingled with his as she darted to and fro. We at once joined our guides, who were ascending a spur of the cliff to the west, bearing, to our great delight, three peregrine's eggs which they had just taken. A few hours hence it would have been too late, for the young had already begun to chip the shell of two of the eggs, which throbbed as if they would burst, while the chirpings of the imates could be distinctly heard. We proceeded to the shelter afforded by an old stone wall, for the wind was strong, and

"Sorrow and shame it were to tell
The butcher work that there befell."

Suffice it to say we saved the eggs, though the holes were rather large.

On the very evening of our arrival Mr. M., the agent of the Ards estate, had most kindly sent off a message to his shepherd up in the mountains, who, on account of his lambs, was keeping a sharp look out for the Muckish golden eagle. From him we now learned that there certainly was one pair about, and that they had been seen during the past week; he did not, however, know of their present breeding-place, but only that of the previous year, which had been robbed, and to which they had not returned. It was quite clear that nothing but a most wonderful "fluke" would enable *us* to find the eyrie in that tremendous range formed by Muckish, Alten, Errigal and a host of smaller mountains, so we turned our attention to smaller game, and set out next morning for the cliffs of Breachy, on the other side of the bay.

We were soon reminded that Donegal was "proclaimed," by a police sergeant asking, with many apologies, for our license to carry a gun, and, having produced our permit, we followed the windings of the shore to where a number of the natives were landing "yah" or seaweed from the "coraghs" and boats that had been out gathering this "harvest of the sea." For those who have never seen a "coragh," I

may state that it is formed by hide or tarpaulin, stretched over a wicker frame; in fact, it is almost identical with the "corracles," the pattern of which the Welsh have inherited from their ancestors, and both may be described as waterproofed washing-baskets. Of course they are very light; they are also almost as crank as a birch-bark canoe, and very dangerous for the inexperienced. Whilst talking to some of the seaweed-gatherers, a handsome, intelligent lad came up with "Are you the boys are after the game-hawks," and on our replying in the affirmative, he requested us to prowl along the cliffs a bit, until he could join us. So on we went, disturbing sundry herons, gulls and ring dotterel, when suddenly, as I rose over a knoll, up flitted two brownish birds, at which for the moment I did not fire, fearing they were peregrines. I could have torn my hair with vexation five seconds later, when I saw that these were the sentinels of a flock of some twenty or thirty curlew, which there was afterwards no approaching. It is not every day one gets within five and twenty yards of a curlew: the fact was I never thought of them at all; my head was full of "game-hawks."

We soon came to the entrance of a lofty cave, out of which flew scores of rock pigeons, whilst nests of the herring gull were on almost every crag, and on the rocks below were some oystercatchers, a nest of which with three eggs rewarded our search. Further on was a still more considerable "gullery," and my young friend R. insisted on descending after eggs, though the place was a bad one, and of course only to be done barefooted. Having gone through this fever some ten years ago, I quietly watched the proceedings over a pipe, until, to my disgust, I found that there was one slippery mass of rock which he could not reascend unless I came down and relieved him of his plunder; so growling at the trouble for paltry herring gull's eggs, I unlaced my boots, and scarcely had we reached the top again when the lad Francis made his appearance. A few feet below us was a shag's nest containing two young and two eggs, a higher and more exposed situation than is usually adopted by that bird, which generally leaves the ledges to the cormorant, and betakes itself to caves and crevices low down in the rocks.

We started for some cliffs where Francis said he knew of some chough's nests, and in a few minutes he had his cap over a hole, imprisoning the old bird, which, however, we allowed to escape for fear of injury to the eggs: these were five in number, and considerably incubated; the nest was composed of dry grass, roots and wool.

Peering into every crevice R. discerned the bright red of the inside of the bill of a black guillemot, which foolishly betrayed herself by opening her mouth, and which was immediately secured, with her two eggs. I was somewhat surprised at this, as most authorities state that the black guillemot is *later* in breeding than the common guillemot, which certainly had not begun to lay even on the 26th of May, at Rathlin; neither had the razorbills, which I have always found to lay a few days earlier. Next came a rock pigeon, but the two eggs were unfortunately broken in extracting the nest, which is often a considerable bundle of dry grass.

After shooting a chough for skinning we turned our steps homeward, and R. took his first cormorant's nest with four eggs. On our way we put up another pair of peregrines, and Francis said he would try for the nest, but that he would have to do it either very early or very late, as the owner of the ground used to get a guinea each for the young birds, and therefore wanted to preserve them. This nest proved to contain young. On arriving at home we found Jem waiting, with the peregrine's eggs from the nest we had vainly attempted the previous day: there were but two; one very handsomely mottled, rather hard set; the other a rich brickdust colour, and addled; so I wondered at the birds making such a fuss as they did.

Next morning we started to go with Francis and his brother in a coragh round the caves, but unfortunately for us the weather was favourable for getting in "yah," so for nearly three hours we were doomed to be spectators of a scene, animated enough, but not exactly what we wanted. Unavailing attempts to stalk sundry herons and a couple of misses at some ring dotterel, varied by chat and pipes with the groups around the bay, beguiled the time until the last load of "yah" came in, which we hastened to assist in unloading, and soon bestowed ourselves in the wet coragh, in which we proceeded to the caves. Now a coragh is not the best thing in the world for quick shooting, inasmuch as standing up is not to be thought of, not even to load, making a breech-loader highly desirable; still we managed to secure more rock pigeons than we could either skin or eat, and the young ones, which were just beginning to fly, were delicious, as fat as butter. I much regret not having preserved one old bird, a hybrid I think, but really we had so much to do all day, and the hospitality of our friends left us so little time in the evenings, that the amount of skinning we did was limited. No words of mine can describe the beauties of the various caves we entered; in one of them R. forced

me to shoot a shag in the pale brown plumage, promising that he would skin it, a vow he did not fulfil. Whilst he and Francis ascended the rocks in an unsuccessful search for a black guillemot's nest, James landed me on some detached rocks to look for the nest of a great blackbacked gull, which he said bred there, but which I did not find, nor did I see the birds. Neither did I discover the lesser blackbacked gull anywhere round the Horn, though Thompson enumerates it in his list of birds breeding there, as well as the common gull (*Larus canus*), which I also failed to see or hear of; indeed I never expected to do so. Mr. R. Warren, of Ballina, says there is a breeding-station of this bird at Lough Talt in the Ox Mountains, Co. Sligo.

James returned to pick me up, having taken one egg of the rock pigeon, and my friend had also obtained two more, making four in all, with which we were obliged to be contented, as it was getting late in the season for these birds, which do not, I think, *rear* more than one brood, though, if robbed, they probably lay again. However, on this point I am by no means certain. Further on was a large colony of cormorants, which R. and F. disturbed, and, after taking as many eggs as they could carry, amused themselves with pelting us with the superfluous ones. Soon after R. had the satisfaction of taking his first shag's nest, with four eggs, from a ledge in a cave, which the natives declared was inaccessible, but which I was perfectly sure was not so; so insisted that one of us should try. R., who had never taken a shag's nest, was anxious to go up, for which he was the more fitted as he was in a state of semi-nudity—his usual condition when out egging. Nothing worse than a ducking could possibly happen to him; so up he went, assisted by the blade of an oar shoved into his fork, and succeeded in bringing down the eggs without damage.

Returning homewards, with my last two charges of shot, I managed to miss a right and left at a pair of black guillemots, startling with the report a flight of small birds which had been feeding on the rocks close by, and which I at once recognized as purple sandpipers in full breeding plumage; and here I was without a shot left, when, to my great delight, R.—feeling mechanically in his pockets—discovered a double charger which he handed to me, and with which I managed to secure one very fine specimen; the others were too much cut about for preserving, as the shot was frightfully large. It was greasy work skinning my bird, for the fat fairly oozed through the shot-holes, reminding me of my experiences with dotterel (*Charadrius morinellus*)

in Cambridgeshire some years ago, when our bag on one occasion amounted to forty-five to four guns, and "all hands to skin" was the order of the day. This was "positively the last" charge, and accordingly all the way home herons and curlew allowed us to come most provokingly near, encouraging desperate thoughts of firing away my waistcoat-buttons at them; a thing I have done at seal, but a sacrifice which a curlew would hardly recompense. And, apropos of seal, a large one came quite close to our coragh, and I was informed that a good many are annually shot in the winter months around this coast.

It was now time to be leaving Dunfanaghy, so next morning we took car to Crossroads, whence another took us to Gweedore, where there is a capital hotel, maintained by Lord George Hill, in order to attract tourists, and thus to better the condition of his tenantry; this being but one of his many schemes for ameliorating their condition. Would that there were more landlords like him. He took much interest in our pursuits, and expressed his desire to preserve eagles as much as possible, but avowed himself utterly powerless against the efforts of the keepers and shepherds for their extermination. Despatching a hasty lunch, Dr. Brady, the agent, drove us down to the port of Bunbeg, where we intended to take boat for Innishatter to try for a peregrine's nest, of which we had heard. On the way we saw a dipper in the burn, and a pair of sandpipers which evidently had a nest. The little port was quite alive with boats bringing "yah" and taking off grain and meal to the neighbouring islands; in fact, the inhabitants were so much engaged in their own business that we found it quite impossible to get men for a boat. So long as Dr. Brady was by, every one said, "I go," but eventually went not; and on his going to administer justice at the court-house, our intended expedition resulted in a long palaver with sundry ancient mariners, who succeeded in convincing us that there were no falcons at Innishatter, though there might be a nest in Goula, or the Bloody Foreland. It was now too late to visit either of these places, so wearied out by the good-natured but determined obstructiveness of these people, who simply did not mean to go anywhere, and carried their point, as an Irishman always will, we started for home, spending an hour in an unsuccessful search for the sandpipers' nest along the burn. We could learn nothing from the keeper respecting eagles, only that there were plenty of merlins on the bogs, and that he often found their nests, some of which he promised to get.

Early next morning we mounted a car and proceeded to Dunleury, where we picked up a "gossoon" to act as guide across the bog and through the Ballaghquilla. The keeper on this estate informed us that he was keeping a sharp look out for eagles, and a few days before had fired shot after shot into a hollow in the rocks where he fancied the nest was, but without effect: he had seen the birds about only the day before, but was sure they were not in the Poisoned Glen, on which we were entering; they might be in Glen Veigh, on the other side of the pass, and out of his jurisdiction. Yes, he'd trapped and shot a good many in his time, he had, and he flattered himself that if he could only get hold of that pair of eagles it would pretty well settle the breed in his district. The peregrines must follow, though they were plaguy far-travelling birds, came all the way from the Horn; but *then* the gamekeeper's millenium might be considered as near at hand—grouse, unlimited grouse, with only the little merlin left as a trifling "thorn in the flesh," lest they should be too much puffed up.

Leaving this uncongenial spirit, we followed our guide up the glen, the barefooted lad jumping like a goat from hag to hag of the bog, and yelling with delight whenever a miss sent one either knee-deep in the moss or caused one to take an impression of one's features in the soft peat. Three miles of this spread-eagle work, during which we saw nothing but titlarks and a pair of golden plovers, brought us to the head of this magnificent glen, and the foot of a pass which reminded me forcibly of some of the lower passes of the Andes. The rock seemed to go up like a wall, but there was a very faint track between the masses of stone, so up we went, pausing every now and then to sweep the glen with our glasses for any signs of eagles or their eyrie. The boy told us that the chough bred in the crevices of the lower part of the glen, and described the bird and egg quite correctly: this is at least six miles from the sea-coast. After a stiff pull we stood on the summit of Ballaghquilla, *i. e.* Pass of the Winds, a name it merits well, for as we topped the crest the gusts almost swept us off our feet. From this great watershed of the district a glorious view is obtained—Alten, Errigal, with its lofty cone glittering in the mid-day sun, and Muckish, looking like a huge tumulus. Refreshing ourselves with copious draughts of some delicious water, we dismissed our guide, and descended into Glen Veigh, a grand gorge, less rugged than some of its neighbours, owing to the wood and bushes which extend for some distance up its sides. On we went, scrutinizing the rocks with

our glasses, and anon shouting to raise an eagle, if there was one, but no success followed our exertions, and a female merlin, which skimmed across the ravine, was the only raptorial bird we saw. As we continued our descent the glen became more and more wooded, until, on passing a police-barrack, we emerged at the head of Lough Veigh, and found ourselves in a narrow path overshadowed with trees, which we followed along the shores of the lake for about six miles, occasionally regaled by the notes of the thrush, to which our ears had for some days been strangers. Evening was coming on, and we were glad to meet our car, which had gone round to the cross-roads, and get safely to Letterkenny. Here we met a gentleman who had seen an eagle over Glen Veigh only a few days before. Thanks to his shooting, we were regaled with rook-pie, respecting which great mystery was observed at the inn, for it seems that the people in this part of the country will not eat rooks if they know it; however, under the name of "pigeon pie" it had been severely punished before it came to us.

Car to Rathmullen, and boat across Lough Foyle, which in the winter, the boatmen told us, swarms with bernicle, brent, widgeon, &c., brought us to Buncrana, whence we proceeded to Malin Hall, which boasts of one of the largest rookeries I ever visited. Not only is the number of nests great, but the dimensions of some of them are enormous: one in particular consisted of a mass of sticks about six feet deep by four feet wide, and was built round seven or eight stems of considerable thickness. I should imagine that *these* rooks do not destroy their nests and rebuild them again every year, as some are supposed to do. There is also a heronry close to the rookery, and the unfortunate herons get dreadfully bullied by their black neighbours; indeed the moment one of the former appears it is the signal for two or three rooks to attack him at once, and it was very interesting to watch their evolutions, each striving to mount above the other. The heron's nests were easily accessible, and were, if I recollect rightly, built in sycamore trees, the same as those of the rooks. All the young birds could fly well, but they seemed to hang about the nests a good deal.

A rattling run, during which we saw numerous gannets fishing, with now and then a Manx shearwater, and other commoner sea-birds, brought us to Portrush, where we carefully examined the Skerries for terns, but they had not begun to breed, and very few had arrived, the rocks being abandoned to oystercatchers and rock pipits, the latter

especially abundant. I do not know if both the arctic and common tern breed here, or only one; I fancy the roseate tern does in small numbers. Rock pigeons seemed tolerably numerous along the coast, and at least two pairs of peregrines have their breeding quarters between this and the Giant's Causeway. R. pointed out to me the place where he had taken one nest, close to the ruins of Dunluce Castle; it was the most accessible eyrie I ever saw, and was reached without a rope. At the Causeway one of the guides offered to take a nest which he knew of, but he wanted a sovereign to go down to it, and as it would probably have contained young birds I did not accept his proposal; moreover, his terms were high. Very few choughs seem to breed in these cliffs, but jackdaws are excessively abundant, and I saw one fellow stalking about within twenty yards of the road, so gray down to the shoulders that at a distance he might almost have been mistaken for a hooded crow. The gun was on the car, and I felt greatly tempted to put it together for his benefit, but reflecting that he would be sure to go off ere the cap was put on, I refrained, and we continued on our way.

Passing Carrick-a-rede, whence we looked down on Sheep Island, the only breeding-place of the storm petrel on the Antrim coast, we arrived at Ballycastle. It had been blowing half a gale of wind all the morning, and no offers would induce the hardy fishermen of the coast to put to sea. We roamed about the shore in despair for some hours gazing at Rathlin Island, which in the clear atmosphere seemed so provokingly close, and we watched the changing of the shadows on the fluted promontory of Fairhead, to my mind the noblest headland in Antrim, and far superior to the Giant's Causeway. At length the wind abated a little, and having managed to collect a crew of four, we started. We soon found that three of the men had imbibed freely to enable them to face the perils of the deep, and one in particular was so excessively drunk that at every second lurch he went to leeward, forming the most dangerous kind of shifting ballast. With a great deal of difficulty we made him bale the boat, for the old tub took in water like a sieve, and after two hours of this work he became more sober. At length we landed safely in Church Bay, where we were most hospitably received by the proprietor of the island, Mr. Robert Gage, and the rest of the evening was devoted to ornithological chat, and inspection of our host's collection of the birds and eggs of Rathlin. It had recently been enriched by fine specimens of the Greenland falcon and Buffon's skua; the former was shot by the shepherd, and

had a companion which escaped; on dissection its stomach was found to be perfectly empty. Then a clutch of hard-set peregrine's eggs had to be blown, and altogether it was late before we could manage to retire to rest.

We commenced explorations next morning by going round part of the island in a boat; Bruce's Castle, as some ruins are called, was passed, and many caves were visited; the scenery everywhere magnificent, but in no way superior to that of the Horn. The razorbills, guillemots and kittiwakes had not even yet begun to breed, and only a few of the puffins, great numbers of which covered the water. As the Manx shearwater was the main object of our expedition, we landed at the foot of Altnahuile, one of their breeding haunts, and after a toilsome clamber we stood on the summit. Two of the men who had been to fetch a rope now returned with a noble salmon net line, very different from the one we had used at the Horn, and one of the natives at once descended as far as the first terrace. R., who during his brief interval of shoes and stockings, had been chafing vehemently against these necessities of civilization, and who had been revelling in the least possible clothing for the last ten minutes, was the next to follow, and I then went down myself, but the shearwaters had scarcely begun to lay, and one egg, with the parent bird, was the only result of our labours. The terraces in which these birds burrow have a slope of fully 45° , and are covered with a long and slippery grass, rendering extreme circumspection necessary on casting off the rope, as one must do to move about freely. The shearwaters lie very deep down in the burrows, and like the puffins are capable of giving a very severe bite to exploring fingers, but they can also scratch like a cat, as we found the next day. The egg, as is well known, is quite white, and has a strong musky smell, though in this respect not to be compared with the egg of the fulmar petrel. The Gaelic name for the bird is "faher" (pronounced fah-her).

From the summit of the cliffs we had a fine view of Islay, the Paps of Jura were distinctly visible beyond and to the right the Mull of Cantire; Ailsa Craig was also just perceptible, the eye being directed to it by the continuous stream of gannets setting out for their fishing: they were very numerous all round the island, but kept far away from our boat. Nothing of interest occurred during the remainder of the day, but on the following morning we visited Kenrimer Cliffs, another breeding-place of the shearwaters, and obtained eleven eggs, and as many birds as we wanted for stuffing; the bird in every case being

found on its egg. When placed on the ground it is perfectly helpless, and on being pushed off the edge of the cliff it falls in an apparently imbecile manner for a couple of hundred feet or so, but it always manages to recover itself before reaching the water, even when it has been cramped in a creel for a quarter of an hour or more. They are endowed with wonderful vitality, and it is most difficult to kill them without injuring the plumage; running a penknife into the place where the brains ought to be has but little effect beyond increasing their efforts to scratch; and as for crushing the breast bone, you may kneel on one for a quarter of an hour without its appearing much the worse. We saw the place where the sea eagle *used* to breed until destroyed in some of their visits to the mainland, and also another eyrie of the peregrine falcon, which Mr. Gage most properly intended to leave in peace, considering it sufficient to take one nest in a season. As for shooting one of the birds, such a crime is hardly contemplated in the Rathlin code of laws; the power of life and death indeed no longer belongs to the "lords of the isles," but I should think the perpetrator might safely count upon being cast adrift in a leaky boat with only one oar, to take his chance. My host spoke with deep regret of the extermination of the sea eagles, which he protected as long as he could, not even possessing one of their eggs in his collection, but no power could prevent them from going to the mainland, where the gamekeeper's gun and strychnine put an end to them.

Some other cliffs supplied R. with a basketful of puffins and herring gull's eggs, and whilst lying on the summit I saw a lesser blackbacked gull, of which a *very* few pairs breed on Rathlin. My host had already pointed out to me the place where he had taken the eggs of the house martin, (*Hirundo urbica*), which along with the swift (*C. apus*) nests abundantly in the cliffs. I fancied on one occasion I distinguished the sand martin (*H. riparia*), but I cannot be *quite* certain. On one of the "terraces," R. found a linnet's nest in a small bush, and, from the appearance of the nest and eggs, it might have been a twite's, as that bird breeds in the island; however, so do the common linnet and lesser redpole, and as the bird was not seen there was no way of deciding. We flushed snipe in the bogs in the interior of the island, and searched fruitlessly for their nests both going and coming: on some of the lochs were also coot, moorhens, dabchicks, wild duck and teal, all of which breed, as do also the common sandpiper and water rail, though not plentifully. Our host was a long time before he could obtain an authenticated nest of the water rail ("quig," in

Gaelic), and the natives look upon it as quite the "blue riband" of birdsnesting; he kindly gave me two eggs, which I value highly, as the only thoroughly authentic specimens I possess. I fancy the genuine egg is much rarer in collections than most people imagine, though old oologists tell us of baskets full, and caps full of harrier's eggs, too, in the palmy days of the fens, before Whittlesea and other meres were drained. The corn crake is very abundant, and may be heard the whole evening long.

Our next expedition was to the south-east end of the island, where a pair or two of the black guillemot breed, but here we were unsuccessful, and could see nothing of the "gar-brecht," as the natives call this bird. R. shot a fine male chough for preserving, and we returned to skin shearwaters with might and main, for the next morning we were compelled, however unwillingly, to tear ourselves away from this delightful island. Apropos of the chough, which is abundant on the island, I am happy to say that the jackdaw, although very numerous on the mainland, has not yet made his appearance here: the first one that does so will meet with a warm reception, for he will forthwith be added to the collection of Rathlin birds. I have not thought it necessary to give a list of these, Mr. Gage having already published a very complete summary of both visitants and residents, in the 'Proceedings of the Dublin Natural History Society.'

Late that evening a native came in to say that he had marked two snipe's nests, and at a very early hour on the following morning we started to take them ourselves. One nest contained three eggs, and the other two, but the bird was on the latter, doubtless preparing to lay another egg, when we thus unseasonably disturbed her. This concluded our birdsnesting in Rathlin, and after breakfast we took leave of our hospitable entertainer, and recrossed the sound to Ballycastle, whence by car and rail we reached Belfast the same evening.

I have already mentioned in the pages of the 'Zoologist' the buff-breasted sandpiper and alpine swift, which I saw in the hands of Mr. Sheil; a visit to the Belfast Museum, and its able curator, Mr. Darragh exhausted the ornithological riches of that locality, and the following evening found us at Comber, whence a walk of four miles (Irish) brought us to Ardmillan, on Strangford Lough, where we trusted to find the redbreasted merganser breeding. On inquiry at a fisherman's cottage one of his boys informed us that there were plenty of "scale ducks" on the islands of the lough, and that a neighbour's son had taken a nest only the evening before, and put the eggs under a

hen. Knowing that the name of "scale duck" is also applied to the shell duck (*Anas tadorna*), I anxiously inquired what the bird was like "Oh, it's a very pretty bird, with the bill all jaggit-like," was the reply. This showed we were on the right scent, and we walked back to Comber in excellent spirits, promising to be back in Ardmillan at six the following morning.

Considering the distance we had to walk, we arrived at Ardmillan with tolerable punctuality; the fisherman's two sons got the boat round, and we embarked with a dog, a sort of small water spaniel he seemed to me, though the boys said his mother was a *terrier*. Anyhow, he was a capital water-dog, and altogether a most valuable ally, for without him, as the lads truly observed, we should have done next to nothing. The first low island that we visited was Rawleigh, and for some time we hunted through the briers which grew along the shore, "Pilot" rummaging every bush indefatigably, but without success. We were just going to return to the boat and try another cover, when a sudden "yap, yap" was heard, and out of the line of brier at the foot of an old stone wall scurried a female merganser hotly pursued by Pilot, who followed her in the water until recalled. We hastened up to the spot, and there, an arm's length in a mass of ivy and brier, was the nest with ten eggs. These we secured, along with the down lining of the nest; the lining was merely placed round the sides, the bottom of the nest consisting of pieces of stick and dried brier. The bird swam up and down within thirty yards whilst her household was being broken up, but the male bird kept a long way off. Island Mahee was drawn blank, but we were more fortunate at the one next visited, for soon Pilot came to a dead point, and barked to draw our attention to a bush containing another nest with eight eggs: these were scarcely secured ere the dog marked another with only three, but very rich buff-coloured eggs. We next visited a long low island where the terns and ring dotterel breed, but the former had not yet began to lay, and only a few pairs were hovering over our heads; I examined them with a powerful glass and they were undoubtedly *Sterna hirundo*. Of the ring dotterel there were two pairs, one of which displayed a strong desire to attract the dog's attention from a strip of beach, fluttering and skimming right under his nose, as a lapwing will do, but Pilot showed the utmost indifference to such artifices, and quartered his ground with the greatest equanimity; he did not, however, find the eggs, which had, I think, been taken that morning by another party: the island was also a

large one, and we were obliged to leave a good deal of it unsearched, as the tide was ebbing fast, and if we had not water enough to pass through the narrows by Island Mahee we should have a two-miles' pull in the teeth of a very stiff breeze. As it was we just managed to force our craft over the rocks; five minutes more, and we should have been too late. As we came through, two cuckoos were having a most animated squabble, and during the day we saw quite a number of these birds.

I could not learn anything about the breeding of the Sandwich tern on this Lough, but I observed several of the birds: the lesser tern is found, but I did not see any myself. Herons, herring and lesser blackbacked gulls were scattered over the gravelly islets, but I do not think the latter breed here, nor could I hear of a haunt of the black-headed gull. The lads were now very anxious to take us to some of the larger and thickly wooded islands, where they said we *might* get some wood pigeon's eggs, or young, a prize *they* considered far preferable to scale duck's eggs. We were, however, deaf to this inducement; we had done very well, and after an unsuccessful search for the nest of another pair of mergansers, which allowed us to come very near, we returned to Ardmillan, well contented with everything and everybody, especially "Pilot," who had taken to me from the first. Much as I should have liked to purchase the clever little dog, his owners seemed so fond of him that I could not find it in my heart to offer a price which they might not have been able to resist, so after lightening the creel by blowing our eggs we stepped off again for Comber, where we dined off the very toughest fowl my teeth ever encountered by sea or land. Force of circumstances has caused me to devour smoke-dried monkey, but its toughness was nothing to that fowl.

Our ramble was now over: the following morning R. returned to Belfast, whilst I pushed on for Dublin, through the beautiful scenery of the County Down, satisfying myself on the way that the golden eagles had been quite exterminated in the Mourne mountains, and seeing nothing worthy of ornithological record, except a siskin which flew close over my car, and settled on a fir-tree on the edge of a large plantation, so that I had a good look at it through my binocular. Considering the season and locality this bird was probably breeding. And thus ended a most delightful three weeks' excursion in Ireland.

HOWARD SAUNDERS.

Oakfield, Reigate, November, 1866.

Letters on Ornithology. By HARRY BLAKE-KNOX, Esq.

LETTER V.—BRITISH LARIDÆ.

Genus LARUS. Species CANUS.

A Natural History of the Common Gull, being an Account of its Habits, Food, Nidification, Cry, Flight, &c.

Habits.—The common gull is perhaps justly so called, for we meet it generally at all seasons and at all times upon the sea. It is a very common bird in our bay in autumn, winter and spring, though rather scarce during the central summer months, at which time, generally, only immature birds are to be met with. At all times it seems to prefer harbours, commercial rivers, the mainland coasts, the strands, and even moist meadows in the country, to the deep sea and the ocean. It arrives (not counting the permanent stragglers) in autumn, from July and August, in large numbers, and becomes gradually scarce from March and April. I am inclined to think that it may breed in some parts of our eastern coast of Ireland; at present I know of no breeding-station on this coast, though it does breed in many parts of this country. During autumn it may be met occasionally, among the flocks of kittiwakes, feeding on such fry as the mackerel have driven to the *very surface*, or those which they have killed or maimed and are *floating*. It never makes those semi-tern-like darts to the water like the kittiwake, but takes its food, I am inclined to believe, always from the surface, like the blackheaded gull, by dipping the beak in the water, and steadying itself over the surface by treading water, as it were, with the feet: food must be very abundant on the spot, or of large size, to cause it to alight. When in company with the kittiwake, or, in fact, always when in pursuit of fry, the common gull appears ill at ease: its actions are hurried and furtive; it seldom rests with the kittiwake, and rarely alights on rocks, but seems always intent upon the one purpose,—that of restlessly scavengering the sea. In fact, a good feed of floating excrement, bread, fat, garbage, or carrion, seems more congenial to its taste than the pure silvery fry. At all seasons we meet this gull in Kingston Harbour, either alone or in company with the blackheaded, the herring, lesser blackbacked, great blackbacked, and sometimes even the kittiwake gull. Their food here is chiefly pieces of biscuit, bread, fat mess pork, oil, tallow, &c., thrown from the Queen's ships and the other craft in harbour. So cunning are the old frequenters that they know dinner-hour on board the coast-guard

frigate as well as the oldest tar, and at times when not a bird is seen some twenty or thirty will make their appearance round the vessel at the dinner-hour to feed on the pieces thrown overboard. Its strangest food is floating oil and grease, in taking which from the surface it and the brownheaded gull show the greatest perseverance and ingenuity. They will fly a foot above the surface, slowly beating the wings, and when a piece of grease or a globule of oil drifts beneath them, the feet dangle in the water, and thus balance the body so that the bill may be dipped to catch the morsel: when the piece is taken the bird rises with a slight jerk to the former elevation, and continues the steady beating of the wings till another piece comes within reach; occasionally a sweep is made like a hawk's, that another position may be taken up. The most minute scraps of food, such as disintegrated excrement, &c., are thus fed upon, the gentle tide-runs of a harbour the situation best adapted. Twenty or more thus engaged, incessantly crying "Is-kla-he-ee," in the softest and most plaintive manner, with four or five blackheaded gulls in their pearly winter dress, dipping their coral feet and bills in the short crisp waves; some "gray" gulls, gorged and floating buoyantly head to wind; a northern diver lazily lying on the water, occasionally giving his head a surly shake, or showing his huge white breast as he *stands* to flap his wings; a slim shag on yonder buoy burnishing his glossy back with his snake-like head and neck; and a few independent sprightly little razorbills diving as if life was all a play to them, make a striking picture. Many a cold winter's day, when I could not venture to sea, have I sat hour by hour on a mooring post watching such a charming scene. How delightful too it is to tread on the bleak gray sands, miles from civilization, at twilight of a winter's evening, hearing the night breeze sighing and moaning across the dreary waste; the east all dark and gray and hazy, the west still tinted with the pale sunset, giving it a cold sickly yellow look, the air pervaded by a frosty fog, the hard rippled sand beneath one's feet—to be covered in a few short hours by the murmuring sea, whose harmony together with the Æolian harp notes of the wind and the cry of the wild gull are sweeter music far to me than the fairest voices and richest instruments of man. Around on every side are little clusters and flocks of gulls, searching the lakes and pools in the sand for their scanty fare, in company with oystercatchers, curlews, whimbrels, dunlins, ringed and gray plovers, turnstones, sanderlings, knots, redshanks, greenshanks, stints, godwits, and various ducks and geese,—a nice orchestra for to-night, my box a barrel sunken in the sand to

be surrounded by the sea (for I am a wild-fowl shooter), or perchance not even this poor comfort, but a starry curtain and a sandy bed, my lullaby the wind hissing and screeching through the leaves of the waving bent grass. With morning dawn, the tide being out again, and with a goodly load of ducks, perchance something rare, to warm my heart, though it seldom chills, for love of Nature can resist for a time, it may be years, the hardships and the dangers of the devoted sea-naturalist's life,—pleasure, too often death,—I trudge the strands towards the little shebeen, the only house within miles to get my breakfast of native whisky, eggs, potatoes and griddle bread. On my way I rouse the little "leaden-legged gull," who at my approach stretches out his head, expands his wings, takes a step or two, and pushes himself off the strand, as it were, by his feet, only to alight again some few yards off and walk with crouched head and solemn air, as if he knew that there was no hurry, and that the tide took six hours to fall and six to flow again. But what sees he now that he erects his head and walks so stately and majestically, with cautious glance and head turned to one side? With lusty strokes he breaks the "sea-hearts" shell and breakfasts off the rich contents: Now he walks to the nearest pond, dips his bill in it and keeps it there, shaking it violently, so much so that the water flies about him on every side; had water not been near to cleanse it he would have done the same in the sand. See how smartly, yet how majestically, that little fellow gets out of the way of yon lordly blackbacked gull, and how the tyrant strikes at him with his ponderous beak for daring to be so near or to feed in his presence, and yet deigns to finish what his little companion was eating. Hear how shrilly he cries "is-kree-e-e-e," when that herring gull "wools" him by the back of the neck for daring to run too close past him. See him now arrange his plumes and shake his wings, jumping and dancing, as it were to taunt his larger brethren. See him play the tyrant himself to some weaker or more amiable brother. See him now take wing and drop again, into another little "bunch" of gulls, where his presence is greeted with peevish cries. See them all rise in hurried disorder off the strand, as my right and left bring down that duck and mallard as they flew past me,—the blackbacked gull how he slowly and heron-like flaps away,—the herring gulls how they wheel and soar over the dead ducks, dismally "laughing" "key-o key-o ha-ha-ha,"—the curlews in the distance trumpet forth their wild "coy-co-o-e,"—vast flocks of sandbirds rise in shadowy clouds, now their backs, anon their snowy breasts, before the

sun, they rise, they fall, they skim the sand, from slowly moving clouds of *smoke*, the flight of thousands as the flight of one, their clear soft flute-like "T-you-ha-who" ringing through the morning air,—and around on all sides little *L. canus* barking and crying in the most plaintive manner "e-yah e-yah e-yah" (something like the bark of a dog, and evidently the origin of its name). Though wary on the strands they may be killed in great numbers as they hover over a dead companion. Many gulls seem to be on the strand merely to rest themselves, as they do not appear to feed, but stand with the head crouched on the back, and one leg and foot buried in the plumage of the belly. The morning wash is generally performed before sunrise, the bird seeking some shallow pool in which it stands ducking the head, and by that means throwing water over the back; the wings are kept in perpetual motion, gently striking the water, and the tail swinging; a great shaking and preening match follows, and then winter's whitest mantle or the waves' unsullied crest is not more white or pure than the breast of the gull; but the feathers of the back, I could not describe them—so immaculate the blue and so delicate the texture. Again, whilst snipe-shooting we meet this little gull in the damp rushy meadows, in the bogs, and along the uncultivated grass-lands of the coast, feeding on the drowned worms and the larvæ of the ghost moth, the long-legs and the dor-beetle. A more solitary or dreary scene could not be witnessed than a bleak sea-shore field, of a wild dark day, dotted with gulls lying or standing, all humped up and motionless, head to wind. They are very partial to grass-lands, miles inland, after snow has thawed, and, in fact, are to be met inland both in stormy and fine weather. I quite believe in the popular opinion that the gull seeks the land more during stormy than during fine weather, and on such occasions flies much further inland.

"Seagull, seagull,
Sit on the strand;
God help the poor sailors
When you come to land,"

is a common Irish rhyme, and I think in many cases too true. I have many times seen them with the feet so stained with red bog-mud that the salt water had not washed it off, showing how protracted some of their visits are to land. Many of our inland lakes are permanently frequented by them, and as they are seen during summer they must consequently breed on their islands and sedges. It is also one of the gulls that follow the plough, and in company with rooks and jackdaws

devour the worms and insects laid bare by the husbandman : at such times it must be of immense service on account of the quantity it consumes. The indigestible portions of the worms it devours are vomited up in the shape of jelly, and should the bird have any fishy substance in its throat a phosphorescent brilliancy is given to these rejectæ at night ; hence our Irish peasantry ignorantly imagine them the remains of “ falling stars.” I know an old fellow who takes his oath to having seen the “ star ” fall to the ground, and on going to pick it up found it composed of “ Starch, ready and all for washing ; and when I seen what it was—God bless us ! (signing the cross)—I took a tremblin’, for I knew the good people (fairies) were near, and when I gother strength again I ran home beyant two mile, and fell widout life into the middle of the flure (floor). Well I went next day to show the ‘ star ’ to another boy (in Ireland we are boys till we marry), and blessed saints ! shure the ferment (firmament) must have dropped in after I left, for the ground was thick with ‘ stars.’ Oh ! divil a lie in it,—there was starch enough there for a riformatry (reformatory where washing is done by reclaimed females). Well ould Andy took to laughing and said that say-gulls made them, but never b’lieve it, sir ; he only said so because *there was a power of gulls about the day before.*” There are many Irish superstitions about the gull, and I believe much of the “ fairy talking,” “ laughing,” “ singing ” and “ sighing,” “ little white women,” &c., heard and seen at night could be traced to the poor storm-bound gull.

Nidification.—From early in May the common gull seeks its breeding-haunts, which are the shores of lakes and salt marshes, unfrequented islands, peninsulars and rocky cliffs. The nest is placed by the water’s edge on the face of the frowning precipice, and on the top of the dizzy cliff ; amongst the sedgy grass, upon the cold rock, and amongst the green samphire or the crisp ling : it is composed of grasses, ling, dry sea-weed and other floating rubbish, turf and various other dry substances. The eggs are three in number, olive-brown, yellowish brown, greenish brown, grayish or greenish white, spotted, blotched, and sometimes streaked with gray and various shades of brown and purple. It breeds in many places gregariously, though as an Irish bird it might be termed solitary, our sea-cliffs being but sparingly frequented by it, and then the nests are scattered most frequently in the lofty regions of the herring gull. I am sorry I cannot say whether it nests upon the shores of our lakes. Any Irish sea-fowl station that can boast of the common gull breeding amongst

its birds has something to boast of. When breeding solitary I always found it extremely shy, leaving the nest on the approach of danger, and not appearing again till all seemed quiet. It shows greater determination when in company, and hovers over the intruder, dismally repeating "e-yah, yah-yah."

Food.—Omnivorous. Floating garbage, fish, crustaceans, mollusks, &c.; carrion, worms, and various land and marine insects. Potatoes and bread are the only vegetable substances I know of it eating, though I have heard of it feeding on corn and growing turnips. Its stomach is not at all adapted to digest any but cooked vegetables, so that dire necessity must have caused it to feed on such food.

Cry.—Lament and apprehension, "e-yah e-yah yah-yah-yah;" pain and anger, "is-kree-e-e," "yah-wah-wah-wah;" pleasure, "is-kla-he-e;" anxiety, "is-key-ah."

Flight, Resting, Swimming.—The flight is a succession of steady beats of the wings and gliding soars; it is more like the noble gull's than either the kittiwake's or the blackheaded gull's. It is freely master of its wings, as its volatile and erratic flights would prove. No bird shows more varied action than does the common gull when fishing in company, none of them so competent to pursue a companion for the piece he cannot swallow, and none of them so competent to elude pursuit. From a great height they will throw themselves quickly to the water by a rapid zigzag fall, just steadying themselves an instant above the surface before darting or alighting on their prey. In windy weather the flight is very pretty and shows great expertness, lying up to wind one moment and progressing by steady beats of the wing; the next gliding with outspread and motionless pinions, balancing itself by throwing the body slightly from side to side, now falling to a foot above the surface, repeating the steady beats; anon rising in the air and throwing up its breast to the wind, allowing itself to be carried fifty yards or more before the blast, when it will again *shear* to the water and progress steadily against the storm. Very varied and gay indeed is its flight. Like all the family it swims with breast deepest, the tail elevated and the head carried gracefully—swimming with no great speed, merely using this power when fatigued or lazy from feeding, or when requiring to alight on the water to devour some large piece of food. They rarely rest on rocks, preferring, if in their neighbourhood, the strands or the fields adjacent to the sea. They stand with the head on the shoulders, and one foot generally buried in the under plumage. The walk is stately, the neck carried

stiff and arched; the run is crouching, the head carried on a line with the body.

HARRY BLAKE-KNOX.

Dalkey, County Dublin.

(To be continued.)

Notes on the Mammalia of Berkshire and Buckinghamshire.—

Hedgehog.—A few days since I was in the shop of one of the Eton birdstuffers, who told me that one or two summers ago he had brought to him alive four hedgehogs; one was the mother, and there were three young ones, the mother and one of the young being of the usual colour, and the remaining two having all their quills of a pure white colour. This is not, I believe, a common occurrence.

Gray Rat.—On the 30th of January I saw a rat sitting on one of the lower branches of a willow tree overhanging the water of a small stream running into the Thames near Windsor. It was apparently feeding, and I was surprised to observe that it was of an iron-gray colour all over, nearly approaching to white. I continued to observe it for about five minutes, during which time it did not move more than to occasionally turn its head towards me, and continue to feed. This is not a very common variety in this neighbourhood, although no doubt some have occasionally been taken.

Common Squirrel.—While walking through Ditton Park, on the 27th of January, I saw one of these active little animals take a rather surprising leap: it leaped at least four feet, in an almost upright direction, from the upper branch of a thorn to one of the thin branches of a larger tree, and it seemed to make a sort of hissing noise; it might have been its feet scratching on the branches, I cannot positively say. Do squirrels make any noise with their mouths?

Common Mouse.—A variety of the mouse was captured by a cat in Eton, on the 30th of January. Its head and legs were of the usual colour, but its back was a sandy yellow colour, not very light. Is this variety common?

Badger.—I have been informed that a pair of badgers bred in the vicinity of Surly Hall, on the Thames, last summer, and that they are occasionally seen now. Some time ago, as Mr. Fisher, of Eton, told me, one young one was seen by a labourer near the Cavalry Barracks in Windsor, who killed it with a prong, thinking that it was a large polecat.

Weasel and Stoat.—Weasels are very common here, as also are stoats, but perhaps not so common as the first-named species. We have no martens in this neighbourhood, so far as I am able to ascertain.—*A. Clark-Kennedy; Eton, February 1, 1867.*

Peregrine Falcon in Kent.—A month or two ago the keepers here, attracted by a great confusion among some rooks, came up and disturbed a large peregrine falcon from a rook which she had knocked down. Soon afterwards one of the same men saw a peregrine, probably the same, swooping down at some pheasants that were feeding. I myself also saw a very large hawk hovering about in the park, which, from its falcon-

like shape, I conjectured was the same bird.—*Clifton ; Cobham Hall, Kent, January, 1867.*

Goshawk in Ireland.—Mr. Thompson, in his ‘Natural History of Ireland,’ says that the goshawk “cannot be included in the Irish Fauna with certainty.” It is probable that he never saw an old and rare folio volume entitled ‘The Gentleman’s Recreation,’ by Richard Blome, which was published in London in 1686. In this work, amongst other subjects, is a valuable treatise on hawking, a pastime which at that date was much in vogue. The author tells us that in collecting materials for this treatise, he was assisted by some of the ablest falconers in England, and the careful way in which it is written, as well as the minute particulars into which he has descended, show that no pains were spared to make the work as accurate as possible. Speaking of the goshawk, he says, “There are divers sorts and sizes of goshawks, which are different in goodness, force and hardiness, according to the several countries where they are bred ; but no place affords so good as those of Muscovy, Norway, and the North of Ireland, especially in the county of Tyrone.” I need do no more than point out that these words, “especially in the county of Tyrone,” sufficiently set at rest any doubt which might arise as to “Ireland” being a misprint for “Iceland,” while the particulars of size, colour and markings, as well as the signs by which we may know a good goshawk, which are subsequently given by the author, sufficiently indicate the species referred to. If we may conclude that the goshawk was once common in the North of Ireland, the causes which have led to its total extinction there in less than two centuries afford a curious matter for speculation.—*J. Edmund Harting ; Kingsbury, Middlesex, January, 1867.*

Kite in Stirlingshire.—About the middle of last month, when returning in the carriage from church, I saw a large hawk sitting on the ground tearing something to pieces. During the short view I had of him I observed a peculiar lightness of colour on his head, and from his general appearance I thought to myself, “Surely that must be a kite.” About ten days after that, when ferreting rabbits on one side of an embankment, I caught sight of a large bird, “with the tail of my eye,” as the expression is. I wheeled round and fired a snap-shot, just as he dipped out of sight on the other side of the embankment, but without any effect that I could discover. I did not see him yet distinctly, but though I did not observe the forked tail I again noticed the whiteness of his head. On the 12th of this month I went round the river looking for ducks: I had just knocked over a couple of teal, killing one and winging the other, and was reloading my gun, when down swoops the same large hawk, and was evidently making for the winged teal, but seeing me he sheered off, and I lost sight of him in a thick wood near. I saw the whitish head, the reddish cast of his general plumage, and the forked tail distinctly, and, in fact, am now perfectly certain as to his being a kite. Long ago the kite built its nest among the pines of Ben Lomond, but it is now indeed a rare, rare visitor to Stirlingshire. Two gamekeepers in the neighbourhood had told me that a very large hawk was haunting Torwood Forest, which is the only place where he could obtain comparative safety from molestation. I wonder very much, however, that he has lived so long about the same locality, as all the ground in this district is overrun with gamekeepers, several of whom have seen him, and are no doubt planning his destruction. If my gun had been loaded I could easily have bowled him over when he made a dash at the winged teal.—*John A. Harvie Brown ; Dunipace House, Falkirk, Stirlingshire, January 19, 1867.*

Beautiful Variety of the Fieldfare.—A gentleman having told me that he had seen two waxwings, a short distance from my house, which allowed him to approach within two or three yards of them, I took out my gun for the purpose of shooting them: I did not succeed in finding them, but was rewarded for my trouble by shooting a beautiful specimen of the fieldfare. The head and wings contained much of the usual colour, mixed with a few white feathers; back beautifully marbled with white; rest of the body white. There was another which looked entirely white along with it, which I did not succeed in shooting.—*George Mawson; Moor Side, January 5, 1867.*

Variety of the Blackbird.—I saw a curious variety of the common blackbird yesterday at a birdstuffer's shop in Eton: it was shot, I am informed, at Wingfield Park, which is not far from Windsor, a few days ago. On its head it had the feathers on the crown of a pure white colour, the white being continued in little streaks and spots on the left cheek, but not on the right; one of the feathers of the right wing was pure white, and the one next to that was half white, all the others being black. Under the lower part of the bill it had some white marks, and the whole of the breast of the bird was of a light yellow colour, more like the breast of a song thrush. The bill was light brown. This specimen was a female, probably a last year's bird: I saw it in the flesh, and it was of the usual size of the blackbird, and in tolerably good condition. Irides yellow, and eyes of the usual colour.—*A. Clark-Kennedy; Eton, February 2, 1867.*

Firecrested Wren, Richard's Pipit and Velvet Scoter in Shropshire.—Last month a firecrested wren was shot at Westbury, Shropshire: I saw it at Mr. John Shaw's, birdstuffer, Shrewsbury, and carefully compared it with Gould's plate: it was a good male specimen. Last autumn a Richard's pipit and a velvet scoter were killed in this county, and are now in the possession of my friend Mr. T. Bodenham, of Shrewsbury.—*William Beckwith; Wellington, January 15, 1867.*

Bohemian Waxwing in Norfolk and Suffolk.—These beautiful birds have been exceedingly abundant in these counties during the past two months. I have myself preserved and mounted as many as fifty specimens that have been shot in nearly forty different localities, which will show how generally distributed they were.—*T. E. Gunn; 3, West Pottergate, Norwich, January 21, 1867.*

Bohemian Waxwing at Witheringsett, Suffolk.—There were two Bohemian waxwings shot at Witheringsett, in this county, in December. I have seen them at Mr. Eaton's, a birdstuffer in this town, who has preserved them; they are very fine specimens.—*Garrett Garrett; 172, Woodbridge Road, Ipswich, January 26, 1867.*

Bohemian Waxwing in Somersetshire.—Mr. Wheeler, taxidermist, of 15, St. Augustine's Parade, has now in his hands for preservation, a very fine specimen of the Bohemian waxwing. It was shot at Butcombe Court, Somerset.—*'Field,' Jan. 12th.*

Bohemian Waxwing near Whitby.—Very large flocks of these beautiful birds have been visiting the north-east coast. No less than fifteen specimens have been shot in Larpool Woods and Russwarp Carrs, near Whitby; ten near the new iron-works at Glaisedale, and several in the county of Durham.—*From the 'Field' of January 26th.*

Bohemian Waxwing, Shore Lark, Richard's Pipit and Montagu's Harrier near Great Yarmouth.—A pair of shore larks (male and female) were shot on the beach on the 2nd of December, by Mr. Crowtha, sen., and are now in my collection. Richard's pipit, shot in the marshes by Sergeant Barnes, of our police force, on the 26th of December; and a fine specimen of Montagu's harrier (female), killed near Horsey on the 28th. Bohemian waxwings have been very plentiful, Mr. Carter, the taxidermist,

having had twenty-six for preservation, some of them in capital condition: eleven others have been shot in this locality, making a total of thirty-seven to this date.—*John G. Overend; Great Yarmouth, January 22, 1867.*—‘*Field*’ of January 26th.

Bohemian Waxwing and Bittern near Ipswich.—Three beautiful specimens of the Bohemian waxwing have been shot near here, and are in the hands of Mr. Seaman, naturalist, for preservation. A fine specimen of the bittern was shot a few days since in the parish of Whitton, about two miles from Ipswich, and is being preserved by Mr. Podd, birdstuffer.—‘*Field*,’ January 19th.

Pied Wagtails near Hornsea in January.—During the severe weather of a fortnight ago, and after a hard gale from the north-east, I shot a pied wagtail (*Motacilla Yarellii*), and have been informed by a neighbouring farmer on the sea-coast that several of the same birds were to be seen for a day or two about his stack-yard. Their appearance at this season I imagine to be a very rare and noteworthy occurrence.—*N. F. Dobrée; Hornsea, February 2, 1867.*

Richard's Pipit, Shore Lark and Wood Lark in Norfolk.—A female specimen of Richard's pipit was killed in the vicinity of Yarmouth on the 29th of December last: this is the fourth instance on record of the occurrence of this rare species in Norfolk. As many as six examples of the shore lark, three males and three females, have been recently killed in this county: the first pair were shot at Beeston Regis, near Cromer, on the 29th of November last, the second pair near Yarmouth on the 1st of December, and the third pair during the early part of this month at Salthouse: they were all immature birds, the males being the largest and brighter in plumage than the females. On the 15th of January two immature specimens of the wood lark, male and female, were shot at Beeston Regis. All the above rarities, with the exception of the second pair of shore larks, came into my hands for preservation.—*T. E. Gunn.*

Bramblings near Eccleshall.—A flock of these beautiful birds visited this neighbourhood (about ten miles from Eccleshall) during last autumn, and I captured thirty-one of them in one day.—*A. B. Bailey; Shooter's Hills, Longton, Staffordshire.*—From the ‘*Field*’ of January 26th.

Linnets gregarious in Summer, and why.—Last summer a flock of linnets remained in the neighbourhood of the links after those of the same species, which had betaken themselves to the whin-covered hills and commons, had eggs. I was at a loss to understand the reason of their late stay, and put to myself the following and kindred questions, as a flock of about one hundred linnets flitted across the drills of a potato-field:—Can it be that the young linnets do not breed the first season after they are hatched? are these unfruitful birds? Not seeming to relish my proximity, they took to the windward; an ounce of dust shot into the “brown of ’em” put me in possession of seven females. The ovaries of all the seven contained eggs varying greatly in size, the largest in some being no bigger than No. 5 shot; in others they were as large as swan-shot, and in one individual they had attained their full size, one egg having the shell partially coloured and apparently ready for extrusion. Next day I had an opportunity of examining the flock on a piece of bare ground with a binocular, and I discovered that they were all females. The cause of the disproportion of the sexes I had explained the other day by a bird-catcher, whose knowledge of our local birds and their habits is considerable, who informed me that during last summer he and others had “limed” about six hundred male linnets, for which they found a ready sale: they had caught, he thought, a greater number of females, which, not being a market-

able commodity, they set at liberty. Portions of lime adhering to the feathers of birds so captured often make them the easy prey of hawks, ground vermin and boys. The fact that hawks regularly hunt the ground frequented by bird-catchers shows how far they find such birds to be at "liberty." If bird-fanciers—and as a class they are very fond of their caged captives—will take into consideration the fearful destruction of bird-life which the gratification of their fancy necessitates, and the loss to the community which their destruction involves, I am sure they will come to

"envy not in any mood
The captive void of noble range."

—*W. Craibe Angus* ; 130, *Union Street, Aberdeen.*

Redlegged Partridge in Aberdeenshire.—At the end of last month Mr. James Mearns shot, within ~~two~~ ^{ten} miles of Aberdeen, a fine specimen of the redlegged partridge. It was in a covey of common partridges. I am not aware of this species having been previously obtained in this county or in Scotland.—*Id.*

Quail in Winter.—On the 16th of January I saw, at Mr. Norman's, taxidermist, of Royston, Hertfordshire, a quail in perfect condition and plumage, shot somewhere in the neighbourhood two or three days before. Is not this a very unusual circumstance?—*W. Clear* ; *Laurel House, Meldreth.*—*From the 'Field' of January 26th.*

Great Bustard at Horsey, Norfolk.—As I was in my boat after wild fowl, &c., on the 7th inst., on Horsey Mere, I observed a large bird flying towards me: at first I mistook it for a heron, from its slow, steady flight; but, on its nearer approach, I found out my mistake. The bird was coming directly over our heads, but bent his course when some sixty or seventy yards from us. We both fired, but the bird kept steadily on its way till we lost sight of it. I could not then imagine what it was, never before having seen the great bustard on the wing; still, the peculiar round shape of the wing, jagged also at the edge, the neck also and head so small in comparison with the body, struck me much, and made me very anxious to get it. On the next two days it was seen again stalking in the marshes, like an over-grown turkey, but it would not allow any nearer approach than one hundred yards before it flew quietly away, taking, however, but short flights, for it seemed more careful than wild. Having now no doubt that the bird was the great bustard (*Otis tarda*), I have been on the look out ever since, but when once the snow came the bird absconded, and I fear my chance of a nearer acquaintance is now at an end.—*T. A. Rising* ; *Horsey, Yarmouth.*—*From the 'Field' of January 19th.*

Avocet in the County Cork.—A very beautiful specimen of the avocet, or "cobbler," as it is sometimes called from its curiously-formed bill, which is turned up like a cobbler's awl, was shot by Mr. Carbery, near Youghal, County Cork, on December 20th, and has been sent to me for preservation.—*W. A. Hacketts* ; *Patrick Street, Cork.*—*From the 'Field' of January 12.*

Singular Habit of the Woodcock.—A correspondent of the 'Field' inquires, "Is it generally known that the woodcock possesses the power of elevating its tail and spreading it over its back, exactly after the manner of a turkey cock? I witnessed this performance last week; the pretty black tail-feathers, with white tips, forming a beautiful fan, and the whole appearance of the bird bearing a close resemblance to an enraged turkey in miniature."

Bittern in Yorkshire.—On the 24th of January I had the good luck to shoot a fine

specimen of the bittern within a mile and a half of Ripon, and close to the River Ure.—*From the 'Field' of February 2nd.*

Landrail in January.—During the late severe weather a man working in a garden here caught a landrail; the bird was in very good condition, and seemed none the worse for the severity of the weather.—*J. W. D. Harrison; Frocester Court, Gloucestershire.—From the 'Field' of January 19th.*

Egyptian Goose in Yorkshire.—On Monday, the 14th of January, I obtained in the neighbourhood of Beverley an Egyptian goose, which had been picked up exhausted after a tremendous gale. Dissection proved it to be an adult female: it had been struck by several shots, which quite accounts for the condition in which it was found.—*W. Stephenson, in the 'Field' of January 26th.*

Redheaded Pochard in Kent.—Three pochards, two drakes and a duck, made their appearance lately on a fish-pond here, where the pearly whiteness of their plumage excited much admiration: they disappeared at the approach of frost. The curious thing was that they never took to flight, but swam about in the middle of the pond.—*Clifton; Cobham Hall, Kent, January 24, 1867.*

Goldeneye, Shore Lark and Little Gull at Eastbourne.—On the 27th of December a fine male goldeneye duck was shot by Mr. Sumner, jun., on the Grumble Pond, Eastbourne. On the 8th of January a shore lark was shot by a fisherman on the beach near Eastbourne, and is now being preserved for my collection. I am also informed that an immature specimen of the little gull has been obtained here this week, and was purchased by the birdstuffer in the town: another was also seen at the same time.—*N. Taylor, in the 'Field' of January 19th.*

Smews from Holland.—To the notice of Mr. J. H. Gurney, in the 'Zoologist' for January (S. S. 608), of the presence of several specimens of the smew, I can add that last week nearly a dozen of these birds were also exposed for sale at a game-dealer's in Hull, which had similarly been imported from Holland. In the same shop were ten geosanders, sent also from Holland.—*N. F. Dobrée; Hornsea, February 2, 1867.*

Redbreasted Merganser on the Bandon River.—On the 9th of January, Mr. Abbott, of Kinsale, shot near Castle White, on the Bandon River, a very fine male specimen of this beautiful bird, which has been sent to me for preservation. The severity of the weather has driven an unusual number of wild fowl to our coasts near Youghal.—*W. A. Hackett; 38, Patrick Street, Cork.—From the 'Field' of January 26th.*

Goosander and other Birds on the Firth.—Yesterday (January 18th) I received from Mr. Singer, of Kincardine, a most magnificent specimen of a male goosander, without spot or blemish: in writing to me he says, "During my long experience I have never met with one here before." However, I believe that the goosander is not uncommon in the Firth in severe seasons. One was shot on our river two winters ago, but its plumage was not nearly so rich as that of this specimen. Mr. Singer also sent me two male specimens of the pochard and two goldeneye ducks, both of which birds are very plentiful at present in the Firth.—*John A. Harvie Brown; Dunipace House, Falkirk.*

Little Grebe affected by the Cold.—As an evidence of the intensity of the frost which occurred at the beginning of this month, I may mention that a pair of the little grebe allowed themselves to be picked up by the hand. Mr. William Buck, of King's Newton, found them sitting under a willow-bush, and had no difficulty in taking them:

they were male and female.—*J. J. Briggs; King's Newton, Swarkeston, Derbyshire.—From the 'Field' of January 19th.*

The Little Auk and Hen Harrier in the West of England.—A good specimen of the little auk was shot the first week in January, at Fairford, Gloucestershire. A fine male hen harrier was shot on the 5th of January, near Holsworthy, Devon. Both birds may be seen at Mr. White's, birdstuffer, Bath-road, Cheltenham.—*From the 'Field' of January 12.*

Query respecting Gulls in Kent.—I should be much obliged if any of the readers of the 'Zoologist' could inform me what are the two common species of gull that frequent the fields near the Thames and Medway: one is an ordinarily sized gull, probably the common gull or kittiwake, having the under parts very pure white, and the under surface of the tips of the wings brown: the other is a very large gull, perhaps one of the blackbacked gulls. They feed on the sprats used as manure.—*Clifton.*

Masked, Iceland and Glaucous Gulls near Scarborough.—Within the last week I have had the following birds brought to me for my collection:—On the 15th of January, a mature specimen of the masked gull, in winter plumage, and an Iceland gull, in immature plumage; and on the 19th, a splendid old female glaucous gull, with a few brown feathers on the neck, otherwise a perfectly full-plumaged bird; and a beautiful old male goosander, in full plumage. We have had an unusual number of purple sandpipers here this year.—*John Knight; St. Thomas's House, Scarborough.—From the 'Field' of January 26th.*

Ornithological Notes from Stirlingshire.—On the 15th of January an immense flock of bramblings passed overhead, flying in a north-easterly direction. The flock took the form of a column, which must have been at least a quarter of a mile in length by some fifteen yards in breadth: it presented a most singular appearance when viewed at some little distance: every slight alteration in the direction of flight of the birds in the van was copied by all the members of the flock behind, thus giving to the column the appearance of a great winged serpent, as it twisted and undulated onward. They were flying at no great height from the ground, say some forty feet, and I saw them distinctly as they passed over, and did not notice a single chaffinch or green linnet amongst them. On the same day I saw a little grebe on the river; they used to breed with us, but are now only seen in severe winters. To-day (January 19th) the keeper and I each killed one water rail: since I recorded those seen and procured in the winter of 1864-65 (Zool. 9468), when three altogether were obtained, none have appeared here until this winter.—*John A. Harvie Brown; Dunipace House, Falkirk.*

Ornithological Notes from Buckinghamshire.—Several wild geese have been observed in the neighbourhood of Eton during the late severe frosts: six were seen to pass over the Thames, near Clewer, on the morning of the 25th of January. Seven wild ducks passed up the River Thames, near Datchet, on the 20th of January; I saw three heading for Ditton Park on the 25th, and several more have been seen and shot during the last fortnight: I hear that most of those which were shot were in capital condition. A widgeon was shot near Surley, on the Thames, by a man on the 24th. Redwings are now common in this neighbourhood. Fieldfares are very abundant. I saw two kestrels hovering over a field by the river on the 25th: they are common here, two or three being continually seen in this same meadow. Nightjars are abundant in the vicinity of Slough and Eton. Many herons have been shot lately on Dawney Common, near Eton, where I believe many are seen together. A few herring

gulls have been observed during the frosts near Windsor, on the Thames, but I have not heard of any being shot: it seems rather far inland for this species to come. The common gull is seen here every now and then. The lovely kingfisher is very plentiful here: I observed one flying over the snow at some distance from any water on the 18th of January. The goldencrested wren is numerous here, being often seen and killed by wandering gunners. I have seen many green woodpeckers lately that have been shot in this neighbourhood: they appear far from uncommon. A specimen of the lesser spotted woodpecker was shot, on the 24th of January, by a person at Langley, near to Stoke: its colours were extremely brilliant, particularly the red on the head. Several teal have been shot up the river during the late cold weather. A few pintailed ducks have been shot on the Thames within the last week: they are not common visitors here. The meadow pipit is extremely abundant here: I have one that was shot, in good winter plumage. Several arctic terns were shot last winter near Eton, but I do not know if any have been seen this winter. Several common terns have been seen here, and a person told me that he had shot one in the beginning of the winter. An Eton man shot two Brent geese a few days since: they were good specimens, and he had them preserved. I hear that snipe have been so tame during the hard weather that several have actually ventured on to the door-steps of dwellings near Eton, and that they only flew a few yards when disturbed.—*A. Clark-Kennedy; Eton, January 29, 1867.*

The Moa.—Your readers will be glad to hear there are good hopes of a full and accurate history of the *Dinornis* or moa being speedily forthcoming. Sir G. Grey, the Governor, is carefully following up all the traces to be found of its existence. Having lately visited the camp of the 18th Regiment, Royal Irish, at Waingongoro, searches have been made in that neighbourhood with success. My son, assistant-surgeon of that Regiment, writes to me as follows: "I have been busy since my return digging bones of the moa, the large wingless bird supposed to be extinct. I have obtained a few good specimens, but unfortunately all the remains have been cooked. So very few are to be procured whole, and even those are so fragile they require to be handled with extreme care. I have a pretty fair collection already, and hope to increase it materially before I leave here."—*G. S. Spencer; Wotton-under-Edge, February 4, 1867.—From the 'Birmingham Daily Post.'*

Bergylt near Hartlepool.—A fine specimen of the bergylt (*Sebastes norvegicus*, Cuv.) was taken yesterday at Seaton-Carew, near Hartlepool, and brought to me: it is about thirteen inches long. This is the first instance on record, so far as I am aware, of this northern fish having been captured so far south as the coast of Durham. Whether it is to be considered as one of the symptoms or results of the severe weather we have lately experienced I leave others to decide.—*H. B. Tristram; Greatham, Stockton-on-Tees, January 28, 1867.*

A large Pike.—On the 22nd of last October Mr. Vale, of Farnham Royal, while spinning in the Cumberland Lake, near Windsor, caught a very large pike: it weighed twenty-five pounds and a quarter, while its length was three feet nine inches. It had a very good back, but hardly any belly. If it had been in good condition it would most probably have weighed about thirty pounds.—*A. Clark-Kennedy; Eton, January 25, 1867.*

Life-Histories of Sawflies. Translated from the Dutch of M. S. C. SNELLEN VAN VOLLENHOVEN, by J. W. MAY, Esq.

(Continued from Zool. 9835.)

CIMBEX LATERALIS, *Leach.*

Imago, *Leach, Zool. Misc.* iii. p. 109, No. 2. *Curtis, Brit. Ent.* i.

49. *DeGeer, Mémoires* (Goetze's trans.), ii. 2, p. 232, pl. xxxiii. figs. 17—22. *Hartig, Blatt-und Holzwespen*, p. 69, var. 2.

Larva undescribed.

Cimbex hirsutus æneo-niger, abdominis margine, ventre, tibiis tarsisque fulvis.

The investigation of the species of the genus *Cimbex* seems to be attended with considerable difficulty. Seeing that we are so little acquainted with the life-histories of these large sawflies, I am disposed to be doubtful about the inference to be drawn from the statements of Bechstein (*Forstinsecten*, p. 444), namely, that the larvæ are here and there very common in Germany, and that in certain districts they occur in very large numbers. Our ignorance of their natural history may, doubtless, in part be accounted for by the fact that the larvæ very frequently remain two winters in the cocoon, and are moreover very subject to the attacks of parasites.

With the view of increasing our knowledge of the habits of these insects, and more especially of determining the true relationships between the larvæ and imagos with which we are already acquainted, I think we should not hesitate about publishing the results of our investigations, even although they may not be complete in every point, for by thus accumulating a number of various observations we may at last be enabled to get at a true knowledge of the subject. Acting on this idea, I now give as good a description and life-history as I am able, in which there are many gaps, it is true, but in the hope that these may eventually be filled up either by myself or other observers.

Besides my inability to give any account either of the egg or of the pupa of *Cimbex lateralis*, there are two other imperfections in my description, namely, the want of an accurate knowledge of the female, and considerable uncertainty as to whether the larva varies or not in colour. To begin with the last point, I will state how many larvæ I have had in my possession. On the 5th of October, 1858, I received

the larva, represented at figs. 1 and 2, plate vi., from Mr. H. P. van Kaathoven, taken by him at Noordwijk. This larva spun up the following day, but during the spring of 1859 it dried up in the cocoon.

On the 15th of July, 1860, I received a larva sent to me, by Mr. E. A. de Roo van Westmaas, from Gelderland: this differed in some respects from the former, and, like it, also failed to attain maturity.

On the 31st of July, of the same year, I found two larvæ, resembling the last mentioned, at Rozendaal, near Velp, on birch: they both spun up on the 3rd of August; one produced a male imago, the other a parasite.

All these larvæ had yellowish heads, with an obscure gray margin to the upper lip; the eyes were inserted in round black spots. The first had a broad brown spot on the vertex; the second, the head of which was of a deeper yellow, had the brown spot more distinctly divided in two; while the two other larvæ, again, had pale yellow heads, but the brown spot was replaced by a small red blotch. To this must be added that the head of the second larva exhibited a longitudinal depression on either side of the vertex, so that that region, looked at from the front, had more of a trifoliate appearance, see fig. 2, which represents the head of the first larva, and fig. 3, representing the head of the second, enlarged.

The larva from Noordwijk had, moreover, a narrow green dorsal line on the anterior segments, which line was not observed on the other larvæ. With this exception all the larvæ were alike in form and coloration. Body green, wrinkled, with small round paler green spots on the folds. Stigmata oblong, with brown margins; around these the skin was somewhat more yellow. Above the stigmata were round excretory ducts; see fig. 4, representing the stigma of the first segment: it must, however, be observed that the oval indentation or setting, as it were, was found on the first stigma only. Below each stigma was a pretty large white wart, and somewhat lower the fold in the skin was also white. The anterior legs were pale green, with black claws, the under surface of the penultimate joint being raised like a pad (fig. 5). The larvæ had twenty-two legs.

These larvæ were all found on birch; the last two, namely, those taken by me at Roosendaal, were the only ones I actually saw feeding, but even these were very nearly full-grown, so that I am as little able to give any account of the earlier stages of the larva as I am of the egg.

The cocoon, which was either enclosed within a curled-up leaf or attached to the flat surface of a leaf, or else stuck against the petiole,

was of a more or less brownish yellow tint. The cocoon which produced the imago was that one having the most tendency towards brown, that from which the parasite appeared having the most tendency towards a green colour. I did not risk opening any of the cocoons so as to examine the pupa: in order to do this, with the least chance of interfering with the development of the pupa, you must know within a little when you may expect to find the pupa formed in the cocoon, but this I knew nothing about.

On the 26th of May, 1860, I was surprised at the appearing of an imago, which, on the authority of Klug and Hartig, I had always looked upon as a variety of *C. Lucorum*. The male example, which I reared, could have served for the description given by De Geer of an imago which he held to be *Tenthredo Amerinæ*, and which he reared from a larva found on a willow, the said larva having neither brown nor red on the vertex. Now I am uncertain whether the species which he reared was identical with mine, *first*, on account of the difference (although small) in the larva; *secondly*, on account of the difference of food-plant; and, lastly, from the fact that I am not perfectly sure whether De Geer, departing from his usual accuracy, has not failed to keep to one species; for after stating the abdomen of the male to be ferruginous on the sides and under surface, and that of the female to be entirely of that colour, he adds, that among the rest was a pair of imagos which had the abdomen entirely black, and others having brownish yellow antennæ, with black knobs. It is to be hoped that the obscure points in these observations of De Geer will be cleared up by further investigations.

In the absence of Leach's work, and on the ground of our example, which was a male, agreeing with the plate and accompanying text of Curtis, we must hold it to be *Trichiosoma laterale* of Leach. The length was nineteen millimetres; expanse very nearly forty millimetres. Head shining black, with some brown hairs on the vertex and cheeks. The eyes were, after death, purplish gray (I omitted to notice their appearance during life); ocelli black and dull after death. Antennæ (fig. 8) containing seven joints, of which the third was the longest and narrowest, the last forming a rounded knob on which two or three transverse lines were obscurely apparent, as if it were composed of three joints anchylosed. The antennæ were black, only that on the upper margins of the third and fourth joints there was a trace of yellow. The upper lip (fig. 9), in this example closed, was large, semicircular, and shining black. Upper jaws (fig. 10) long and narrow,

with one very acute and two blunt teeth, black, tipped with reddish brown. I was not able to figure the lower jaws and under lip without spoiling the specimen, so that I have copied both from the 49th plate of Curtis's 'British Entomology,' representing the same insect. The thorax was æneous, thickly covered with long brown-gray hairs. The abdomen, looked at from above, consisting of eight segments, was purplish black on the dorsum, broadly margined with deep yellow, the ventral surface being entirely of this colour. Wings long, transparent, yellowish, clouded with brown; the posterior margin smoke-coloured; nervures reddish yellow as far as the stigma, black further on; stigma also black. The nervures of the posterior wings yellow as far as the middle of the wing.

The coxæ, apophyses, and femora, together with the bases of the tibiæ, shining blue-black, tibiæ and tarsi deep yellow; pads and claws brown. There is a minute tooth on the femora of the second pair, but the posterior femora are armed with a very conspicuous and sharp tooth, as shown at *a*, fig. 13.

According to De Geer the female of this species differs very little in colour and appearance from the male. In the Museum at Leyden are five examples, two males and three females, the latter being very small in comparison with the former. One male, taken by Mr. Van Bemmelen at Wassenaar, has the middle of the antennæ red (half of the third, the fourth and the fifth joints), some brown spots on the red ventral surface, and very dark triangular spots at the extremities of the anterior wings.

The other male, from Germany, has the antennæ resembling those of the example from Wassenaar, the rest of the colouring being of the usual type. The three females are perceptibly smaller, have but a very small tooth on the posterior femora, and have all the coxæ, apophyses and femora of a beautiful violet, the tibiæ being yellow. In one example the antennæ are entirely black; a second example has the antennæ red in the middle, while in a third these organs are red from the first joint to the knob.

A parasite subsequently made its appearance from the small greenish cocoon, which parasite I take to be, although rather doubtingly, *Paniscus inquinatus*, *Grav.* Inside the original cocoon it had constructed another smaller cocoon of a brown colour, resembling gall-stone, the walls of this latter being thin but tough. The wings of the parasite were so twisted together that it was quite unable to fly.

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

Annual General Meeting, January 28, 1867.—Sir JOHN LUBBOCK, Bart., President, in the chair.

The President announced that one of the Prizes offered by the Council for Essays on Economic Entomology had been awarded to Dr. Wallace, of Colchester, for an Essay on the Oak-feeding Silkworm from Japan.

An Abstract of the Treasurer's Accounts for 1866 was read by Dr. Sharp, one of the Auditors, and showed a balance in favour of the Society of £79 15s. 1d.

The Secretary read the Report of the Council for 1866.

The following gentlemen were elected to form the Council for 1867, namely:—Messrs. Bates, Dunning, Sir John Lubbock, M'Lachlan, Moore, G. S. Saunders, Dr. Sharp, A. F. Sheppard, Frederick Smith, Stainton, S. Stevens, Weir, and Prof. Westwood.

The following officers for 1867 were afterwards elected, namely:—President, Sir John Lubbock, Bart.; Treasurer, Mr. S. Stevens; Secretaries, Mr. Dunning and Dr. Sharp; and Librarian, Mr. Janson.

The President read the Annual Address.

A vote of thanks to the President was carried by acclamation.

A vote of thanks to Mr. Edwin Shepherd, on his resignation of the Secretaryship, an office which he had held for twelve years, during seven of which he was the principal acting Secretary, was carried by acclamation; and thanks were also voted to the other officers for 1866.

February 4, 1867.—Professor WESTWOOD, Vice-President, in the chair.

The President (by letter) nominated as his Vice-Presidents Messrs. Westwood, Stainton, and Frederick Smith.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—*'Proceedings of the Royal Society,'* Vol. xv. Nos. 84—88; presented by the Society. *'Journal of the Linnean Society,'* Zoology, No. 35; by the Society. *'On the Development of Chloëon (Ephemera) dimidiatum,'* by Sir John Lubbock, Bart.; by the Author. *'Catalogue of the Longicorn Coleoptera of Australia,'* by F. P. Pascoe, Esq.; by the Author. *'Catalogue des Lépidoptères des Environs de St. Pétersbourg,'* par N. Erschoff; by the Author. *'The Zoologist'* for February; by the Editor. *'The Entomologist's Monthly Magazine'* for February; by the Editors.

Election of Members.

Herbert Edward Cox, Esq., of Croydon, was elected a Member; and Yeend Duer, Esq., of Cleygate House, Esher, an Annual Subscriber.

Prizes for Essays on Economic Entomology.

The Chairman announced that the Council had again resolved to offer two prizes of five guineas each for Essays, of sufficient merit and drawn up from personal observation, on the anatomy, economy or habits of any insect or group of insects especially serviceable or obnoxious to mankind. The Essays must be sent to the Secretary at No. 12, Bedford Row, on or before the 30th of November, 1867, when they will be referred to a Committee to decide upon their merits; each must be indorsed with a motto, and be accompanied by a sealed letter indorsed with the same motto and inclosing the name and address of the Author.

Exhibitions, &c.

Mr. Bond exhibited four specimens, two males and two females, of a *Lasiocampa* bred by Mr. Robert Mitford from larvæ found on the coast of Kent; he regarded them as merely a variety of *Lasiocampa trifolii*, differing from the normal form in colour and in the antennæ of the male, though he was informed that the larvæ also differed and were of a golden colour. The insect might be supposed to bear the same relationship to *L. trifolii* that *L. Callunæ* bears to *L. quercus*, and had very much the appearance to be expected in a hybrid between *Lasiocampa trifolii* and *Odonestis potatoria*. Other bred specimens of *L. trifolii*, from Cumberland, Hants, Dorsetshire and Devonshire, were produced for comparison.

Mr. Bond also exhibited several *Fritillaries* with unequally developed wings; and a remarkable variety of *Dianthœcia capsicola* from York.

Mr. Bond offered an explanation of the curious habit of *Macroglossa stellatarum*, frequenting stone walls, &c., as to which an enquiry was made at the previous Meeting (Zool. S. S. 583). The object was to secrete itself in some hole or crevice: he had often noticed that the insect had a morning and an afternoon flight, but in the middle of the day grew tired, when it would seek out a wall or bank and creep up it until it found a hole or cranny wherein to rest.

Dr. Wallace corroborated this: when residing in the Isle of Wight he had observed the humming-bird hawk-moth resting in crevices of mud banks, &c., and on one occasion he had captured in a limpet-shell a specimen which was thus reposing.

Prof. Westwood exhibited a singular variety of *Mamestra brassicæ* caught by Mr. Briggs, of St. John's College, Oxford. Mr. Bond mentioned that he possessed a similar specimen.

Dr. Wallace said that on recently looking through Dr. Bree's collection of British Lepidoptera he had detected a *Platypteryx Sicula* mixed up with *P. falcataria*. The insect did not bear any label, and Dr. Bree had not any recollection of the capture of the particular specimen, though he had no doubt that it had been taken by himself some years ago along with *P. falcataria* in the neighbourhood of Stowmarket. If so, this was a new locality for the species, which in this country had hitherto been known to occur only in the neighbourhood of Bristol.

Mr. G. S. Saunders exhibited a nest formed by social caterpillars among the leaves of a Brazilian tree, a species of *Zeyhera*; it was about a foot in length, and formed a compact web between two small branches. The nest was collected in 1866 by Senor J. C. de Mello, at Campinas, Province of S. Paulo, and by him sent to Mr. Daniel Hanbury.

Mr. Wormald exhibited a collection of insects sent from Shanghai by Mr. William Pryer, amongst which was a single specimen of a wild *Bombyx*, having some resemblance to *B. Huttoni*.

Dr. Wallace exhibited an English cocoon of *Bombyx Yamamai*, one of two reared in 1866, at York, by Mr. Dossor.

Dr. Wallace also exhibited numerous specimens of the cocoon and imago of *Bombyx Cynthia*, and the silk thereof. One was a double cocoon, the joint work of two larvæ. Another cocoon, formed in 1865, and which in due course ought to have produced a moth in 1866, contained a still living pupa, which would probably hatch in 1867. He mentioned that though the moths were greedily eaten by fowls and other birds, the larvæ, though not hairy, were rejected; and that when *Ailanthus* leaves were not procurable the larvæ had been found by Captain Hutton to thrive on honeysuckle. The moths of *B. Cynthia* were subject to considerable variation in size and coloration. He had invariably found that at the commencement of the hatching out of a brood the males greatly outnumbered the females, whilst at the end the reverse was the case: he argued that in proportion as the individual was finer the time required for its metamorphosis was longer; hence in general the female, which was the larger and heavier insect, was preceded by the male, which was smaller and had less to mature. He thought *Bombyx Guerinii* and *B. Ricini* were probably only varieties or local forms of *B. Cynthia*. Lastly, Dr. Wallace mentioned that he had frequently observed a sound to proceed from the eggs of *B. Cynthia*, "a sort of click, a single sound, generally in the second week," which was attributed to "the parchment-like shell being pressed out with a spring by the effort of the larva within, and returning to its concave form."

Mr. F. Moore exhibited *Bombyx Guerinii*, of which only three or four specimens were known, and *Bombyx Ricini*, with its cocoons and silk, for comparison with the produce of Dr. Wallace's *Ailanthery*.

Mr. Alfred R. Wallace remarked that Dr. Wallace's theory on the relation between the size of the specimen and the period of development satisfactorily accounted for the fact that as a rule in *Lepidoptera* the male was smaller than the female. Owing to the precarious tenure of life of a *Lepidopterous* insect, which was not only exposed to the attacks of many enemies, but was also liable to destruction from mere change of temperature, it was important that the female should be impregnated almost as soon as hatched, and therefore that males should be in readiness at the time of her emergence. The males which first hatched became the parents of the future progeny; the progeny inherited the qualities of the parent; and thus in process of time the males which had a tendency to early hatching, the small specimens which required a shorter period for their development, predominated, while those which hatched later, the larger males, being without mates and therefore leaving no offspring, would constantly tend towards extinction, and finally leave the smaller males in possession of the field.

Mr. Janson exhibited a collection of *Coleoptera* from Vancouver's Island, amongst

which Mr. Pascoe pointed out some fine Longicorns, a form resembling the Australian *Hesthesis*, *Plectrura*, *Purpuricenus*, *Exops*, &c.

Mr. C. A. Wilson, of Adelaide, South Australia, communicated the following notes on *Cerapterus Macleayii* and *Calosoma Curtisii*:—

"*Cerapterus Macleayii*.—Of the genus *Cerapterus* we have three species in this colony, *C. Wilsoni*, *C. Macleayii* and *C. Hopei*. The first of these is much the most rare, and from twice to three times the size of the others. Some years ago *C. Macleayii* was found frequently between the town (Adelaide) and the sea, at about two miles from the former and five from the latter, and always under dry cow-dung: after this, on nearing the sea, or rather gulf (St. Vincent), it gave place to *C. Hopei*. It has also been taken around Gawler under the same circumstances, that is, on land never yet turned up, where cattle, horses, &c., have long grazed, and under cow-dung of a particular age or state of dryness—dropped some days, but before all moisture had gone from it. Specimens of this beetle have, however, become scarce in all the former spots, on account of the traffic and disturbance of their places of rest; but on the 17th of November, 1866, I searched a large untilled paddock of about 134 acres, west of Adelaide, where cattle had grazed for some years, and obtained seven specimens of this *Cerapterus*; this was one specimen to about thirty or forty of their domiciles that I turned over, and all were found alone. I am not aware of any account of the habits of these Paussidæ having been published. There is a note in the Addenda to Westwood's 'Modern Classification,' stating that Mr. Macleay's brother had found an Australian species of *Cerapterus* residing in ants' nests: it is not said what kind of ant, the white (*Termes*) or the common (*Formica*): I suppose the former; if otherwise, the circumstance is quite unknown to me. Should the habits of the *Cerapterus* (of N. S. Wales?) be the same as here, I fancy this remark is an error from cursory observation. I think the *Cerapteri* only use their dry coverings as places of shelter, though how they come there and why first found there I confess I cannot tell. Perhaps they fly at night and hide in the day. I observed on this and former occasions the following facts; the white ants are in these plains found nowhere but under drying cow-dung, still hundreds of pieces in the most favourable conditions are without them. In the present case four of the pieces under which the *Cerapteri* were found had white ants under them, and three had not. Each of the beetles was lying under his canopy in a small depression of the ground, or with the earth slightly raised round him, and was always perfectly still: where there were ants they appeared to have no connexion with the beetle or in any way to disturb him or be aware of his presence, though running about when the coverings were raised. I also observed that where no ants were with the other *Cerapteri* there evidently never had been any. Nearly all these seven specimens on being disturbed or lifted by me crepitated several times, some as many as three times, before immersion in the methylated spirit I had with me, at the same time discharging from some part of the body a yellow fluid, which stained the abdomen and last pair of legs, but disappeared on immersion in the spirit.

"*Calosoma Curtisii*.—To obtain this species of Carabidæ I had to go three miles nearer to the gulf, to a place called the Reed Beds, a large tract of land several miles square, extending in some parts nearly to the gulf, and obtaining its name from several acres of reeds still growing at its furthest extremity. I have before given some remarks

on the habits of this species, which I beg to refer to (see Zool. for 1864), and will now supplement. Though formerly, as there mentioned, rather numerous, and one year particularly so, at the foot of the North Adelaide hills, they seem almost entirely to have deserted them. As with the *Cerapterus*, the presence of cattle seems necessary to their maintenance, and though on the former occasions I found them mostly running about, and very seldom under dry cow-dung, I have reason from this day's observation (November 17, 1866) to think that they lay their eggs beneath it. In November, 1864, I captured near the Reed Beds as many as twenty-two; this was at a farm where many cows were kept, sandy in some parts, but good soil in others. Rather late in November, 1865, I repaired to the same spot, but did not find a single specimen; that, however, was a year of drought. The favourable and long-protracted rains of this year made me hope better things, and I was not disappointed. I took in about an hour and a half, from a space somewhat less than an acre, sixty-five of the *Calosoma*. Nearly all of them were under the half-dried cow-dung; under the first I lifted were four; under one as many as twenty. But few were running about, and these either round the deposits or from one to another. As usual they never once attempted to fly, though they have ample wings, and the day was sufficiently warm: they ran, but not very fast, and were easily taken. Under the piece of cow-dung where the largest number were found only two or three were at first seen, but others had gone below the surface of the ground, and on watching a slight kicking or disturbance of the earth took place, and the beetle was easily captured. The males and females, slightly differing in size, the latter being the largest, were much together, and I conclude it was late in their season, and that the eggs were being deposited beneath the surface under the cow-dung. There were not any larvæ about, though I had seen them at this time of year on a previous occasion. The beetles smelt strongly of the substance under which they burrowed, and I think they fed on it.

"Our large five-horned *Copris* has of late years spread in the Gawler districts from the same cause, viz. the numerous deposits from the cattle. Through this, while in a moist state, they pierce during the dark hours, going often a foot down, making large holes, and throwing up the earth behind them; and I have dug out from under one piece from twenty to thirty specimens, male and female. They first appear in June, when rain has fallen, up to September when leaving off."

Prof. Westwood observed that, in the note referred to, in the 'Modern Classification,' he undoubtedly was speaking of *Formicidæ*, and not of *Termitidæ*. Mr. Wilson did not seem to be aware that *Paussidæ* had been repeatedly found in ants' nests, and that several species had been sent from the Cape of Good Hope by Guenzius with the nests of the particular species of *Formicidæ* which they frequented.

Mr. A. R. Wallace remarked upon the rapidity with which the insects mentioned by Mr. Wilson had adapted their mode of life to the altered circumstances in which they found themselves placed; thirty years ago there was not a cow in South Australia, and yet members of three families of *Coleoptera*, so widely separated as the *Paussidæ*, *Carabidæ* and *Copridæ*, had already become habitual frequenters of cow-dung; and this was the more remarkable in the *Calosoma*, whose British congener was arboreal in its habits.

Mr. Gould exhibited *Hylurgus piniperda*, which was doing considerable mischief to *Pinus insignis* in several parks and plantations in Cornwall.

Mr. Pascoe called attention to an article on *Atropos pulsatoria* in Hardwicke's 'Science Gossip,' of the 1st of February, 1867, in which Mr. W. Chaney wrote as follows:—

"My first acquaintance with *Atropos*, or as it is generally called here the wood-louse, commenced about thirteen or fourteen years ago: at that time I lived in an old house in Brompton, near Chatham, and in my bed-room, which was also my library and museum, I had a very *olla podrida* of Natural History hanging about the walls; among the rest was a honey-comb. It was soon after the introduction of this to my list of curiosities that the strange ticking sound (which at the time sorely puzzled me) commenced, and that led me eventually to the investigation of the cause. I soon found that the noise proceeded from the comb, and on closer examination I saw a number of wood-lice travelling about from one cell to another, and appearing very busy in their explorations. After awhile the ticking commenced, which I quickly traced to a particular cell, and by the aid of a common convex lens I could perceive *Atropos* beating with its head against the side of the cell, the noise produced being quite as loud as the tick of an ordinary watch, thus confirming Mr. Derham's observations, 'and viewing them with a convex lens, I soon perceived some of them to beat or make a noise with a sudden shake of their body,' &c. From this time the honey-comb, which perhaps from its peculiar sonorous nature suited them so well, became the headquarters of *Atropos*, and night after night, and sometimes by day, might be heard the tick, tick, tick, by the hour together; sometimes one, sometimes two or more, ticking away with all their might, as if to out-tick each other. At any time by carefully approaching the comb, and waiting a second or two quietly, they might with the aid of a lens be seen at their peculiar pastime. Since then I have lived in my present house, a comparatively new one, for about twelve years, and during that time have constantly heard the familiar tick from time to time, twice during the last week, October 8th and 10th. *Atropos* is very numerous here, seeming to prefer the mantel-piece, upon which are several vases filled with artificial flowers, and any night they may be seen by the dozen prying into any little crevice, or minutely surveying petal after petal of their floral habitation."

Mr. F. Smith said that he had a number of living *Atropos* which he had been observing for some time, but he had not yet been able to detect them making any sound.

Mr. M'Lachlan reiterated his disbelief that so soft an insect could be the author of the tapping noise attributed to it; and with reference to Mr. Chaney's observations, he should scarcely have thought that honey-comb was of a "peculiar sonorous nature."

Paper read.

Dr. Wallace read a paper "On some Variation observed in *Bombyx Cynthia* in 1866."

Errata.—Zool. S. S. 572, note, for "*Papilio Ænea*," read "*Papilio Cenea*." Page 584, for "*Bombyx Yamamai*," read "the Japanese mulberry-feeding *Bombyx* yielding green cocoons."—J. W. D.

The Birds of Shakespeare. By J. E. HARTING, F.Z.S.

(Continued from Zool. S. S. 479.)

TURTLE DOVE (*Columba turtur*).*Midsummer Night's Dream*, Act i. Scene 1.; Act i. Scene 2.; Act ii. Scene 1.*Merry Wives of Windsor*, Act i. Scene 3.*Coriolanus*, Act v. Scene 3.*Love's Labour Lost*. Song.

"The dove of Paphos."

Pericles, Act iv. Intro.

The towns of Old and New Paphos are situate on the S.W. extremity of the coast of Cyprus. Old Paphos is the one generally referred to by the poets, being the peculiar seat of the worship of Venus, who was fabled to have been wafted thither after her birth amid the waves. (See Smith's Dict. Greek and Rom. Geograph. Mela. 2. 7; Tacit. Hist. 2. 3; and Lemprière.) The "dove of Paphos," therefore, may be considered as synonymous with the "dove of Venus." Sometimes by Paphos is understood the city of Cyprus, which is said to have been founded by Paphos, son of Pygmalion, and was known by his name:

"Illa Paphon genuit: de quo tenet insula nomen."

Ovid, Metam., Book 10, Fable 8.

The dove has always been considered the emblem of innocence, and as frequently represents modesty, patience, fidelity, and other virtues.

"Therefore do nimble pinioned doves draw love."

Romeo and Juliet, Act ii. Scene 3.

"Modest as the dove."

Taming of the Shrew, Act iii. Scene 2.

"As patient as the female dove."

Hamlet, Act v. Scene 1.

* * * as innocent

As is the sucking lamb or harmless dove."

Henry VI., Part II., Act iii. Scene 1.

"The dove and very blessed spirit of peace."

Henry IV., Part I., Act iv. Scene 1.

“As true as steel, as plantage to the moon
As sun to-day, as *turtle* to her mate.”

Troilus and Cressida, Act iii. Scene 2.

So in Spenser's ‘*Faerie Queene*’

“And of fair Britomart ensample take
That was *as trew in love as turtle to her make*.”

Book III., Canto xi., 2.

“*Make*,” from the Anglo-Saxon “*maca*,” signifies a companion or mate, and occurs frequently in Spenser's works.

“And followed her *make* like turtle chaste.”

Astrophel, 170.

An enquiry into the meaning of the word “*plantage*,” above mentioned, leads to some curious information. “*Plantage*” is probably for anything that is planted (Nare's ‘*Glossary*,’ &c., 4to, London, 1822). Plants were supposed to improve as the moon increased, and from an old book entitled ‘*The Profitable Art of Gardening*,’ by Thos. Hill, the third edition of which was printed in 1579, we learn that neither sowing, planting, nor grafting, was ever undertaken without a scrupulous attention to the increase or waning of the moon. Dryden does not appear to have understood the above passage, and has accordingly altered it to “as true as *flowing tides* are to the moon;” but the meaning of the original words seems sufficiently clear, and may be fully illustrated by the following quotation from R. Scott's ‘*Discoverie of Witchcraft*’:—“The poore husbandman perceiveth that the increase of the moone maketh plants fruitful, so as in the full moone they are in the best strength; decaieing in the wane, and in the conjunction do utterlie wither and vade.”

It is possible that particular reference may be had to the plant “*honesty*” or “*lunary*” (*Lunaria*), which was so named from the circular shape of its pod, which was thought to resemble the moon (*Luna*), not only in its form but in its silvery brightness. The title of “*honesty*” appears to have been given to it from the transparent nature of the pod which discovers those seed-vessels that contain seed from such as are barren or have shed their seed. We learn from Chaucer that “*honesty*” (*Lunaria*) was one of the plants used in incantations; but he mentions it as “*Lunarie*.” Drayton calls it “*Lunary*.”

“Then sprinkles she the juice of rue.
With nine drops of the midnight dew
From *Lunary* distilling.”

Nymphid.

But to return to our doves :

“ Who will not change a raven for a *dove* ? ”

Midsommer Night's Dream, Act ii. Scene 3.

“ Was Mahomed inspired with a *dove* ? ”

Henry VI., Part I., Act iv. Scene 1.

It is related that Mahomed had a dove which he used “ to feed with wheat out of his ear, which dove, when it was hungry, lighted on Mahomed’s shoulder and thrust its bill in to find its breakfast, Mahomed persuading the rude and simple Arabians that it was the Holy Ghost that gave him advice.” (Sir Walter Raleigh’s ‘ History of the World,’ Book I., Part 1. c. 6).

“ Seems he a *dove* ? his feathers are but borrowed.”

Henry VI., Part 2., Act iii. Scene 1.

“ As soft as *dove*’s down and as white as it.”

Winter’s Tale, Act iv. Scene 3.

“ So shows a snowy dove trooping with *crows*,
As yon fair lady o’er her fellows shows.”

Romeo and Juliet, Act v. Scene i.

“ So *turtles* pair
That never mean to part.”

Winter’s Tale, Act iv. Scene 3.

“ Like an eagle in a *dovecote*, I
Flutter’d your Volscians at Corioli.”

Coriolanus, Act v. Scene 3.

“ I’ll sacrifice the lamb that I do love
To spite a raven’s heart within a *dove*.”

Twelfth Night, Act v. Scene 1.

The custom before alluded to (Zool. S. S. 536) of bestowing a pair of doves as an offering is very ancient, and Izaak Walton tells us that “ for the sacrifice of the Law a pair of turtle doves or young pigeons were as well accepted as costly bulls and rams.” When Gobbo wished to curry favour with Bassanio, he began by saying :

“ I have here a dish of *doves* that I would bestow on your worship.”

Merchant of Venice, Act ii. Scene 2.

Doves and pigeons, probably, were often synonymous terms : we have referred to Justice Shallow’s *penchant* for pigeons, and Paris speaking to Helen of Pandarus, says :—

"He eats nothing but *doves* love."

Troilus and Cressida, Act iii. Scene 1.

A weakness which he deprecates as being heating to the blood.

"To be furious

Is to be frightened out of fear; and in that mood

The *dove* will peck the ostrich."

Antony and Cleopatra, Act iii. Scene 2.

"So cowards fight when they can fly no farther

So *doves* do peck the falcon's piercing talons."

Henry VI., Part 3, Act i. Scene 4.

"And *doves* will peck in safeguard of their brood."

Id., Act ii. Scene 2.

"But bees with smoke and *doves* with noisome stench

Are from their hives and houses driven away."

Henry VI., Part 1, Act i. Scene 5.

"I an old *turtle*

Will wing me to some wither'd bough, and there

My mate that's never to be found again

Lament till I am lost."

Id., Act v. Scene 3.

"Fare you well my *dove*."

Hamlet.

PHEASANT (*Phasianus Colchicus*).

"None, sir, I have no *pheasant*, cock nor hen."

Winter's Tale, Act iv. Scene 3.

PARTRIDGE (*Perdix cinerea*).

"Who finds the *partridge* in the puttock's nest,

But may imagine how the bird was dead,

Although the kite soar with unbloodied beak."

Henry VI., Part 2, Act iii. Scene 2.

Such was the beautiful metaphor uttered by the Earl of Warwick upon the occasion of the Duke of Gloucester's death. The unfortunate Duke Humphrey was discovered dead in his bed, with marks of a violent death upon his features, and grave suspicion fell upon the Duke of Suffolk, who "had him in protection." This circumstance, coupled with the fact that Suffolk was a sworn enemy of the Duke, placed a heavy weight in the balance against him.

There are some persons of such temper that when aught occurs to put them out of humour they will sit apart in sulkiness, brooding over conceived wrongs, perhaps refusing their food, but never spiting any so much as themselves. Such a one was Benedick, of whom Beatrice says:—

“He'll but break a comparison or two on me, which peradventure not marked or not laughed at, strikes him into melancholy. And then there's a *partridge* wing sav'd, for the fool will eat no supper that night.”

Much Ado About Nothing, Act ii. Scene 1.

From all such, say we, heaven defend us!

QUAIL (*Perdix coturnix*).

“Here's Agamemnon, an honest fellow enough,
And one that loves *quails*.”

Troilus and Cressida, Act v. Scene 3.

Anciently it was the practice to keep quails and to make them fight like game-cocks. Solon directed that quails should be made to fight in the presence of the Athenian youths in order to inflame their courage, and the Romans held quail-fighting in still higher estimation. Augustus punished a prefect of Egypt with death for buying and bringing to table a quail which had acquired celebrity by its victories. (Vide Julius Pollux “*De ludis*,” lib. ix). Even at present this sort of amusement is common in some parts of Italy, and still more so in China. In Italy they feed up two quails very highly, and then place them opposite to each other at the end of a long table, throwing between them a few grains of millet-seed to make them quarrel. At first they merely threaten, lowering the head and ruffling all the neck-feathers, but at length they rush on furiously, striking with their bills, erecting their heads, and rising upon their spurs, until one is forced to yield.

In ‘Antony and Cleopatra,’ Antonius says of Cæsar:

“His cocks do win the battle still of mine
When it is all to nought, and his *quails* ever
Beat mine inhoop'd at odds.”

“With Antonius there was a soothsayer or astronomer in Egypt that could cast a figure and judge of men's nativities, to tell them what should happen to them. He told Antonius plainly that his

fortune (which of itself was excellent good and very great) was altogether blemished and obscured by Cæsar's fortune; and therefore he counselled him utterly to leave his company, and to get him as farre from him as he could. Howsoever it was, the event ensuing proved the Egyptian's words true: for it is said that as often as they drew lots for pastime, who should have anything; or whether they played at dice, Antonius always lost. *Oftentimes when they were disposed to see cock fight or quails that were taught to fight one with another, Cæsar's cocks or quails did ever overcome.* The which spited Antonius in his mind, although he made no outward show of it, and therefore he believed the Egyptian the better. In fine he recommended the affaires of his house unto Cæsar and went out of Italy with Octavia his wife, whom he carried to Greece, after he had had a daughter by her." (See North's Plutarch).

LAPWING (*Vanellus cristatus*).

The lapwing, like the partridge and some other birds, has a curious habit of trying to draw intruders away from the nest or young, by fluttering along the ground in an opposite direction, or by feigning lameness, or uttering melauncholy cries at a distance.

"Far from her nest the *lapwing* cries away."

Comedy of Errors, Act iv. Scene 2.

Allusions to this habit of the lapwing are not unfrequent in our old poets. We read in Lily's 'Campaspe,' 1584:

"You resemble the *lapwing* who crieth most where her nest is not."

So also Greene, in his second part of 'Coney Catching,' 1592:

"But again to our priggers, who, as before
I said *cry with the lapwing farthest from her nest.*"

And in Ben Jonson's 'Underwoods':

"Where he that knows will *like a lapwing flie*,
Farre from the nest and so himselfe belie."

Hence the phrase "to seem the lapwing," which occurs in 'Measure for Measure.' Act i. Scene 5. So in 'Much Ado About Nothing':

"For look where Beatrice, like a *lapwing* runs,
Close by the ground to hear our conference."

Act iii. Scene 1.

It is well ascertained that the young of the lapwing, partridge, and some few other birds, run almost as soon as hatched, and Shakespeare was evidently aware of this peculiarity when he wrote :

“This *lapwing* runs away with the shell on his head.”

Hamlet, Act v. Scene 2.

HERON (*Ardea cinerea*).

Considering the frequent allusions to falconry which we find throughout the Plays of Shakespeare, and the fact that the heron was one of the birds most frequently flown at, for hawking at herons was thought to be “a marvellous and delectable pastime,” it is somewhat surprising that this bird is not more often mentioned.

Hamlet says :

“I am but mad north north-west: when the wind is southerly, I know a hawk from a *handsaw*.”

Hamlet, Act ii. Scene 2.

An old proverbial saying, originally “he does not know a hawk from a *hernshaw*,” *i. e.* a *heron*, but the word was thus corrupted before Shakespeare’s day.

“An ingenious friend,” says the ‘*Athenæum*’ (December 30, 1865), “suggests the following explanation of this passage which has greatly puzzled commentators. Among the ancient Egyptians the hawk signified the Etesian, or northerly wind (which, in the beginning of summer, drives the vapour towards the south, and which, covering Ethiopia with dense clouds, there resolves them into rains, causing the Nile to swell), because that bird follows the direction of that wind (Job xxxix. 26). The heron, *hern*, or *hernshaw*, signified the southerly wind, because it takes its flight from Ethiopia into Higher Egypt, following the course of the Nile as it retires within its banks, and living on the small worms hatched in the mud of the river. Hence the heads of these two birds may be seen surmounting the *canopi* used by the ancient Egyptians to indicate the rising and falling of the Nile respectively. Now, Hamlet, though feigning madness, yet claims sufficient sanity to distinguish a hawk from a *hernshaw* when the wind is southerly, that is, in the time of the migration of the latter to the north, and when the former is not to be seen. Shakespeare may have

become acquainted with the habits of these migrating birds of Egypt through a translation of Plutarch, who gives a particular account of them, published in the middle of the sixteenth century by Thomas North."

John Shaw (M.A. of Cambridge), who published a curious book in 1635, entitled '*Speculum Mundi*,' tells us that "the heron or *hernsaw* is a large fowle that liveth about waters," and that hath a marvellous hatred to the hawk, which hatred is duly returned. "When they fight above in the air, they labour both especially for this one thing, that one may ascend and be above the other. Now, if the hawk getteth the upper place he overthroweth and vanquisheth the heron with a marvellous earnest flight."

The heron, besides affording much sport when hawked at, was considered, when killed, a great delicacy for the table.

"On 18th May, 1812, the executors of Thomas Sutton, founder of the London Charter House, gave a splendid feast in the Hall of the Stationers' Company. For this repast were provided 32 neats' tongues, 40 stone of beef, 24 marrow bones, 1 lamb, 46 capons, 32 geese, 4 pheasants, 12 pheasants' pullets, 12 godwits, 24 rabbits, 6 *hearnshaws*, &c., &c."—*Malcolm*.

WOODCOCK (*Scolopax rusticola*).

Love's Labour Lost, Act iv. Scene 2.

Taming of the Shrew, Act i. Scene 2.

"Shall I not find a *woodcock* too?"

Much Ado About Nothing, Act v. Scene 1.

"Four *woodcocks* in a dish."

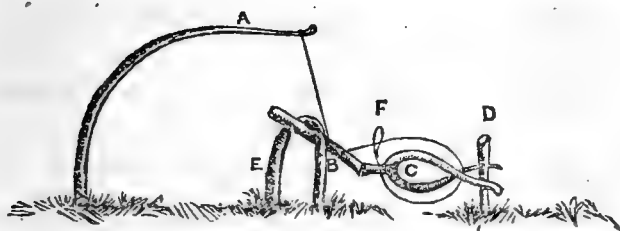
Love's Labour Lost, Act iv. Scene 3.

In Shakespeare's time, as at present, the woodcock was considered a great delicacy, and we find many allusions to its capture by springe and gin.

"Aye, springes to catch *woodcocks*."

Hamlet, Act i. Scene 3.

Mr. St. John, in his '*Natural History and Sport in Moray*,' describes a springe, with which he used to take snipe and woodcock very successfully. It was made as follows:—



- A. Rod like a mole-trap stick.
- B. Short piece of stick.
- C. Forked stick with one end passed through the other.
- D. Straight stick.
- E. Bent stick.
- F. Hair-snare.

A, by pulling on B, presses it against the forked stick C, which in turn is pressed against the upright stick D, and this keeps it all in place. But on a bird stepping on the forked stick C, the weight of the bird loosens its hold, and the long stick A flies up, catching the victim in the snare, which is laid flat on the forked stick C.

“If the springe hold, the cock’s mine.”

Winter’s Tale, Act iv. Scene 3.

Mr. Knox, in his ‘Game Birds and Wildfowl,’ has described a very similar trap, and his description is so animated, while at the same time so instructive, that we are tempted to overlook the similarity and quote his words:

“We soon found many tracks of the woodcock on the black mud; and on one spot these, as well as the borings of his beak, were very numerous. Here my companion halted, and pulling out his knife, cut down a tall willow rod, which he stuck firmly into the ground in nearly an upright position, or perhaps rather inclining backwards. On the opposite side of the run he fixed a peg, so as to project only a few inches above the surface; to this he fastened a slight stick about a foot long, attached loosely with a tough string, much as the swingel of a flail is to its handstaff: another branch of willow was bent into an arch, and both ends driven into the soft ground to a considerable depth on the opposite side of the track, and nearer to the tall upright wand. To the tip of the latter a string was now fastened, the end of which was formed into a large running noose; while, about half way down, another piece of stick, about six inches long, was tied by its middle. The flexible wand was then bent forcibly downwards, one end of the little stick overhead was passed under the arch, while it was retained in this position, and at the same time the bow prevented from springing upwards, by the other extremity being placed against a notch at the end of the stick which had been fastened to the peg on the other side of the run, across which it now lay, two or three inches

from the ground, and supported the noose. This, in fact, constituted the trigger, which was to be released when struck by the breast of the woodcock. The old man constructed his trap in much less time than I have taken to describe it. His last care was to weave the sedges on either side of the run into a kind of screen, so as to *weir* the woodcock into the snare, and this he accomplished with much skill and expedition."

"As a *woodcock*, to my own springe
I am justly kill'd with my own treachery."

Hamlet, Act v. Scene 2.

Another method of taking this bird was with a steel trap called "a gin."

"Now is the *woodcock* near the gin."

Twelfth Night, Act ii. Scene 4.

This trap being commonly used now-a-days for rats, is probably too well known to need a description here.

* * "so strives the *woodcock* with the gin."

Henry VI., Part III., Act i. Scene 4.

In taking leave of this species, we may conclude with the portentous words of the clown in 'Twelfth Night,' who, after a lengthy dialogue with Malvolio on the subject of the transmigration of souls, and the opinion of Pythagoras concerning wildfowl,* concludes by saying:

"Fear to kill a *woodcock*, lest thou dispossess the soul of thy grandam. Fare thee well."

Twelfth Night, Act iv. Scene 3.

SNIFE (*Scolopax gallinago*).

The only allusion to this bird which we have been able to find occurs in 'Othello,' where Iago, alluding to Roderigo, says:

"For I mine own gain'd knowledge should profane
If I would time expend with such a *snipe*
But for my sport and profit."

Othello, Act i. Scene 3.

* See later, under head of "Wild Duck."

The speaker being evidently of opinion that a snipe was too insignificant a bird to the sportsman to warrant his taking much trouble to secure it, except for mere sport.

GOOSE (*Anser ferus*).

As You Like It, Act iii. Scene 4.

Love's Labour Lost, Act ii. Scene 1; Act iv. Scene 2.

Midsummer Night's Dream, Act v. Scene 1.

Tempest, Act ii. Scene 2.

Merry Wives of Windsor, Act v. Scene 1.

Romeo and Juliet, Act ii. Scene 4.

Coriolanus, Act i. Scene 1.

"Winter's not gone if the wild *geese* fly that way."

King Lear, Act ii, Scene 4.

"The spring is near when green *geese* are a-breeding."

Love's Labour Lost, Act i. Scene 1.

"When every *goose* is cackling."

Merchant of Venice, Act v. Scene 1.

May is the time for a *green goose*, *i. e.* a goose fed on grass in contradistinction to a *stubble* or Michaelmas goose :

"So *stubble* geese at Michaelmas are seen

Upon the spit; next May produces green."

King's 'Art of Cookery.'

"I have stood on the pillory for *geese* he hath

Kill'd, otherwise he had suffered for 't."

Two Gentlemen of Verona, Act iv. Scene 4.

"His discretion I am sure cannot carry his valour, for the *goose* carries not the fox."—*Midsummer Night's Dream*, Act v. Scene 1.

"Why then my taxing like a *wild goose* flies,

Unclaim'd of any man."

As You Like It, Act ii. Scene 7.

"As *wild geese* that the creeping fowler eye."

Midsummer Night's Dream, Act iii. Scene 2.

"You souls of *geese* that bear the shapes of men."

Coriolanus, Act i. Scene 4.

“He that trusts to you,
Where he should find you lions, finds you hares,
Where foxes, *geese*.”

Coriolanus, Act v. Scene 1.

* * * “I’ll never
Be such a *gosling* as to obey instinct.”

Id., Act i. Scene 3.

(*Falstaff*.) “If I do not beat thee out of thy kingdom with a dagger of lath, and drive all thy subjects before thee like a flock of *wild geese*, I’ll never wear hair on my face more.”—*Henry IV.*, Part I., Act ii. Scene 4.

“*Goose*, if I had you upon Sarum plain,
I’d drive you cackling home to Camelot.”

King Lear, Act ii. Scene 2.

There appears to be some difference of opinion as to what place is meant by the ancient name Camelot. Selden, in his notes to Drayton’s ‘*Polyolbion*,’ says: “By South Cadbury is that Camelot; a hill of a mile compass at the top; four trenches encircling it, and betwixt every of them an earthen wall; the contents of it within about twenty acres, full of ruins and relics of old buildings.”

In the ‘*History of King Arthur*’ (Chap. 26), Camelot is located in the West of England, Somersetshire, while in Chapter 44, it is related that Sir Balen’s sword “swam down the stream to *the citie of Camelot that is in English Winchester*.”

When Caxton finished the printing of the ‘*Mort d’Arthur*,’ in 1485, he says of the hero: “He is more spoken of beyond the sea * * * and yet of record remain witness of him *in Wales, in the town of Camelot* the great stones and marvelous works,” &c.

Tennyson, in his ‘*Morte d’Arthur*,’ twice mentions Camelot, and in his ‘*Lady of Shalott*’ frequently alludes to “many tower’d Camelot,” but in neither poem is any clue to its precise situation given.

“Nay, if our wits run the *wild goose chase*, I am done.”

Romeo and Juliet, Act ii. Scene 4.

The *wild goose chase* was a barbarous sort of horse race, in which two horses were started together, and the rider who first got the lead compelled the other to follow him over whatever ground he chose. (See Chambers’ Dictionary, last edition, article “Chase;” also Holt White’s note to this passage in the ‘*Variorum Shakespeare*.’)

“And all be turn'd to *barnacles*.”

Tempest, Act iv. Scene 1.

It was anciently believed that the barnacle or bernacle shell-fish (*Lepas anatifera*) which is found on timber exposed to the action of the sea, became, when broken off, a kind of goose. Some indeed supposed that the barnacles actually grew on trees, and thence dropping into the sea became geese, and an interesting cut of these birds so growing, from a MS. of the 14th century, is given by Mr. Haliwell, who observes that “the barnacle mentioned by Caliban in ‘The Tempest,’ was no doubt the tree-goose, and the true absurdity of our old writers, as Douce has observed, consisted in their believing that this bird was really produced from the shell of the fish.” The manner in which it was supposed to be generated may be seen from the following extract from Gerards ‘Herbal, or History of Plants,’ a rare treatise, the author of which lived during the reign of Elizabeth. He says, “There is a small island in Lancashire called the Pile of Foulders (on the west side of the entrance into Morecambe Bay, about fifteen miles south of Ulverston), wherein are found the broken pieces of old and bruised ships, and also the trunks and bodies, with the branches of old and rotten trees, cast up there likewise; whereon is found a certain spume, or froth, that in time breedeth unto certain shells, in shape like those of the muskle, but sharper pointed, and of a whitish colour, wherein is contained a thing in form like a lace of silke, finely woven as it were together; one end whereof is fastened to the inside of the shell, even as the fish of oisters and muskles are; the other end is made fast unto the belly of a rude masse or lump, which in time cometh to the shape and form of a bird: when it is perfectly formed, the shell gapeth open, and the first thing that appeareth is the aforesaid lace or string; next come the legs of the bird hanging out, and as it groweth greater, it openeth the shell by degrees, till at length it is all come forth, and hangeth only by the bill: in short space after it cometh to full maturitie, and falleth into the sea, where it gathereth feathers, and groweth to a fowl bigger than a mallard, and lesser than a goose, which the people in Lancashire call by no other name than a tree goose; which place aforesaid, and all those parts adjoining, do so much abound therewith, that one of the best is bought for threepence.” So fully convinced was the sage Gerard of the “truth hereof,” that he closes his account with an invitation to all who doubted the fact to apply to him. “If any doubt, may it please them to apply unto me, and I shall satisfie them by the testimonie of good witnesses.”

SWAN (*Cygnus ferus*).*Merry Wives of Windsor*, Act v. Scene 5.

"I have seen a swan
With bootless labour swim against the tide,
And spend her strength with overmatching waves."

Henry VI., Part III., Act i. Scene 4.

"And wheresoe'r we went, like Juno's swans,
Still we went coupled and inseparable."

As You Like It, Act i. Scene 3.

"For all the water in the ocean
Can never turn a swan's black legs to white,
Altho' she laves them hourly in the flood."

Titus Andronicus, Act iv. Scene 2.

"Compare her face with some that I shall show,
And I will make thee think thy swan a crow."

Romeo and Juliet, Act i. Scene 2.

* * * Her hand

To whose soft seizure *cygnet's* down is harsh."

Troilus and Cressida, Act i. Scene 1.

Mr. Yarrell, in his 'History of British Birds,' remarks that "The young, when hatched, which is generally about the end of May, are conducted to the water by the parent bird, and are even said to be carried there: it is certain that the cygnets are frequently carried on the back of the female when she is sailing about in the water. This I have witnessed on the Thames, and have seen the female, by raising her leg, assist the cygnets in getting upon her back." Mr. Jesse, also, in his 'Gleanings in Natural History,' correctly observes "Where the stream is strong, the old swan will sink herself sufficiently low to bring her back on a level with the water, when the cygnets will get upon it, and in this manner are conveyed to the other side of the river, or into stiller water."

That this habit had been noticed by Shakespeare we may presume from a passage in 'King Henry VI.,' where we read:

"So doth the swan her downy cygnets save,
Keeping them prisoner underneath her wings."

Henry VI., Act v. Scene 3.

“Underneath her wings,” that is sheltered by the wings, which are arched over the back whereon the young are seated.

This habit of carrying the young has been remarked also in the horned grebe (*Podiceps cornutus*). Mr. Proctor, of Durham, speaking of the habits of this bird in Iceland, says: “One day, having observed one of these birds dive from its nest, I placed myself with my gun at my shoulder waiting its re-appearance. As soon as it emerged I fired and killed it, and was surprised to see two young ones, which it seems had been concealed beneath the wings of the parent bird, drop upon the water. I afterwards shot several other birds of this species, *all of which dived with their young under their wings*. The young were placed with their heads towards the tail, and their bills resting on the back of the parent bird.”

“In the world’s volume
Our Britain seems as of it, but not in it,
In a great pool a *swan’s* nest.”

Cymbeline, Act iii. Scene 4.

“I will play the *swan* and die in music.”

Othello, Act v. Scene 2.

“A *swan*-like end, fading in music.”

Merchant of Venice, Act iii. Scene 2.

“The swan being identified with Orpheus, and called also the bird of Apollo, the god of music, powers of song have been often attributed to it and as often denied. It is, however, perfectly true that this bird has a soft low voice, rather plaintive, and with little variety, but not disagreeable. I have heard it often in the spring, and sometimes later in the season, when moving slowly about with its young.” (Yarrell’s ‘British Birds,’ Vol. iii. pp. 213-14).

Col. Hawker, in his ‘Instructions to Young Sportsmen’ (11th Edition, p. 269), says: “The only note which I ever heard the wild swan, in winter, utter, is his well-known ‘hoop.’ But one summer evening I was amused with watching and listening to a domesticated one, as he swam up and down the water in the Regent’s Park. He turned up a sort of melody, made with two notes, C and the minor third E flat, and kept working his head as if delighted with his own performance.”

The melody, taken down on the spot by a first-rate professor, Auguste Bertini, was as follows:

Allegro, or by Maelzel's Metronome = 126.



The Abbé Arnaud has penned some very minute observations upon the voice of the swan. He says:—"The swan, with his wings expanded, his neck stretched, and his head erect, comes to place himself opposite to his female, and utters a cry to which the female replies by another, which is lower by half a tone. The voice of the male passes from A (*la*) to B flat (*si bemol*): that of the female from G sharp (*sol dièse*) to A. The first note is short and transient, and has the effect which our musicians call *sensible*; so that it is not detached from the second, but seems to slip into it. Observe that, fortunately for the ear, they do not both sing at once; in fact if while the male sounded B flat, the female struck A, or if the male uttered A while the female gave G sharp, there would result the harshest and most insupportable of discords. We may add that this dialogue is subjected to a constant and regular rhythm, with the measure of two times. The inspector assured me that during their amours these birds have a cry still sharper, but much more agreeable." (Wood's Buffon, xix. 511, note).

WILD DUCK, WILD FOWL (*Anas boschas*).

Midsummer Night's Dream, Act iii. Scene 1.

Tempest, Act ii. Scene 2.

Troilus and Cressida, Act iii. Scene 2.

* * * "You know
Strange fowl light upon neighbouring ponds."

Cymbeline, Act i. Scene 5.

* * * "Like a flight of fowl
Scatter'd by wind and high tempestuous gusts."

Titus Andronicus, Act v. Scene 3.

"Such as fear the report of a caliver worse than a struck fowl or hurt wild duck."—*Henry VI.*, Part I., Act iv. Scene 2.

"Alas! poor hurt fowl, now will he creep into hedges."

Much Ado About Nothing, Act ii. Scene 1

It is noticeable that when any of the diving-ducks are winged or wounded they generally make for the open water, where they endeavour to escape by diving or swimming away, whereas if a duck which does not excel in diving be wounded it will, as a rule, make for the shore, and, as Shakespeare tells us, "creep into hedges."

Falstaff. "There's no more valour in that Poins than in a *wild duck*."

Henry IV., Part I., Act ii. Scene 2.

As a rule, the wild duck is not easily approached, and takes wing on the least alarm, never facing a danger and fighting as some birds will do in defence of their young or when wounded. A remarkable instance, however, of fearlessness and affection in a wild duck recently came under our observation. A sportsman, returning home late one evening, surprised a pair of ducks in an old gravel-pit, now half full of water. As they rose he killed the duck with the only charge he had left, dropping her in the middle of the water. Before he could get her out, he observed that the drake, which had flown to a considerable distance, finding himself alone, returned to the spot, and notwithstanding that his enemy was still moving on the bank, after making one or two circles in the air, alighted on the water close to the dead body of his mate. Swimming round and round her, from time to time he uttered a mournful note, and appeared very unwilling to leave the spot. Instead of pitying the distress of the poor mallard, and regretting the loss he had occasioned him, the sportsman, we are sorry to add, hastened home, the distance of nearly a mile, and, procuring some more powder and shot, returned and killed the faithful bird, which still remained upon the water near its mate. We saw the pair shortly afterwards; they were the pintail duck, in remarkably good plumage. ('The Birds of Middlesex,' p. 226).

All ducks are very cleanly in their habits, and take a great pleasure in dressing their feathers after feeding, and it would be difficult to find a more conceited-looking bird than a wild duck.

Falstaff, however, speaking of Poins, says:

"There is no more conceit in him than is in a *mallet*."

Henry IV., Part I., Act ii. Scene 4.

Thereby implying that the "mallet," that is, the mallard or wild drake, has no conceit in him.

* * * "Antony

Claps on his sea wing, and like a doting *mallard*,
Leaving the fight in height, flies after it."

Antony and Cleopatra.

"That as a *duck* for life that dives,
So up and down the poor ship rides."

Pericles, Introd.

The following dialogue between Malvolio and the clown in 'Twelfth Night,' concerning wildfowl, has perhaps quite as much reference to birds in general:—

Clo. "What is the opinion of Pythagoras* concerning *wild fowl*?"

Mal. That the soul of our grandam might haply inhabit a bird.

Clo. What think'st thou of his opinion?

Mal. I think nobly of the soul, and no way approve his opinion.

Clo. Fare thee well. Remain thou still in darkness: thou shalt hold the opinion of Pythagoras ere I will allow of thy wits; and fear to kill a woodcock, lest thou dispossess the soul of thy grandam. Fare thee well."

Act iv. Scene 3.

CORMORANT (*Carbo cristatus*).

"Insatiate *cormorant*."

Richard II., Act ii. Scene 1.

With this exception we find the word "cormorant" invariably used by Shakespeare as an adjective; as, for example:—

"The *cormorant* belly."

Coriolanus, Act i. Scene 1.

"The *cormorant* war."

Troilus and Cressida, Act ii. Scene 2.

And

"*Cormorant* devouring time."

Love's Labour Lost, Act i. Scene 1.

GULL (*Larus*).

Othello, Act v. Scene 2.

Twelfth Night, Act iii. Scene 2; Act v. Scene 1.

"Here comes my noble *gull* catcher."

Twelfth Night, Act ii. Scene 4.

For the derivation and meaning of the word "gull" we may refer back to Zool. S. S. 530.

* See Zool. S. S. 658.

“ For I do fear
When every feather sticks in his own wing,
Lord Timon will be left a naked gull.”

Timon of Athens, Act ii. Scene 1.

“ And sometimes I’ll get thee young *sea-mells* from the rock.”

Tempest, Act ii. Scene 2.

Sea-mell no doubt is synonymous with sea-mall or sea-mew. In Macgillivray’s ‘Manual of British Birds,’ we find “sea-mew, maw, or moll,” given as names for the common gull.

We have now reviewed to the best of our ability the information afforded us by the Plays of Shakespeare on the subject of our British birds. The inquiry, at first sight, may have appeared trivial, but now that we have concluded our task, and have seen what an extensive knowledge in one branch only of Natural History was possessed by our great poet, our admiration for him as a poet must be increased tenfold on perceiving that the beauteous thoughts which he has clothed in such beauteous language were dictated by a pure love of Nature, and by a study of those great truths which appeal at once to the heart and to reason, and which infuse into the soul of the naturalist the true spirit of poetry.

J. E. HARTING.

Kingsbury, Middlesex.

Notes on the Quadrupeds of Lanarkshire.

By EDWARD R. ALSTON, Esq.

(Concluded from S. S. 242.)

IN concluding these notes, I propose now to give a list of the species met with in this part of Scotland, with references to my previous notes on them. The nomenclature and arrangement adopted are those of Prof. Bell’s standard work on ‘British Quadrupeds.’

Common Bat (*Vespertilio pipistrellus*, Geoff.).—Is our commonest species, though hardly so abundant with us as in some places.

Longeared Bat (*Plecotus auritus*, Geoff.).—This pretty bat is also not uncommon, and is the only other species which I have met with. Daubenton’s bat (*V. Daubentonii*) has been taken more than once in Scotland, and other species would probably be found if the subject were properly investigated.

Hedgehog (*Erinaceus europæus*, *Linn.*).—Is abundant in Lanarkshire, as throughout Scotland generally, excepting the extreme north (Zool. S. S. 59).

Mole (*Talpa europæa*, *Linn.*).—Is common in spite of constant persecution (Zool. 9707).

Common Shrew (*Sorex tetragonurus*).—Very common (Zool. 9358).

Oared Shrew (*S. remifer*, *Geoff.*).—Appears not to be very rare, although seldom met with.

Badger (*Meles taxus*).—Is probably still found in some places, although I have no evidence of its occurrence of late years.

Otter (*Lutra vulgaris*, *Erxleb.*).—The otter is common on the Clyde, rarer in the smaller streams and tributaries (Zool. S. S. 10).

Common Weasel (*Mustela vulgaris*, *Linn.*).—Is abundant in spite of constant trapping. It particularly affects small plantations and old stone walls, but is also found on the open moors (Zool. 9647 and S. S. 159).

Stoat or Ermine (*M. erminea*, *Linn.*).—The stoat is even more plentiful than the last-named species, and this seems to be the case in most parts of Scotland; it frequents similar localities (Zool. 9647 and S. S. 159).

Polecat (*M. putorius*, *Linn.*).—Was formerly not uncommon, but now seems to be almost extinct. I am not acquainted with any authentic captures of either the common or the pine marten (*Martes foina*, Gmel., and *M. abietum*, Ray) in Lanarkshire of late years. The wild cat (*Felis catus*, *Linn.*) also appears to be extinct, although it still holds its ground in Dumbartonshire and Stirlingshire (near Loch Lomond), as well as further north.

Fox (*Vulpes vulgaris*, *Briss.*).—The fox is common, especially where preserved, and inhabits both the woodlands and the open moors.

Squirrel (*Sciurus vulgaris*, *Linn.*).—The squirrel is plentiful throughout Lanarkshire, but is said not to be found in Ayrshire (Zool. 9359, 9481, 9647, and S. S. 240).

Field Mouse (*Mus sylvaticus*, *Linn.*).—This pretty species is not uncommon, though not nearly so plentiful as the field vole (Zool. 9708).

House Mouse (*M. musculus*, *Linn.*).—"Ye littel vulgare mouse" is of course abundant. It is not uncommon in coal-mines, where it probably lives on the crumbs and remains of the colliers' dinners; in such places albino mice are sometimes met with (Zool. 9708).

Brown Rat (*M. decumanus*, *Pall.*).—Is only too plentiful, in the neighbourhood of houses or farm-yards (Zool. 9708 and S. S. 60).

Water Vole (*Arvicola amphibius*, *Desmar.*).—The so-called “water rat” is commonly found in every pond and ditch, but does not seem to inhabit the swift gravelly streams or “burns.” I have not met with the black variety, but believe that it is found in some parts of the country.

Field Vole (*A. agrestis*, *Flem.*).—This is the commonest of the “field-mice,” and seems to frequent fields, meadows, woods and gardens alike; in winter it climbs low trees and barks the young shoots. Locally it is called the “water mouse” (Zool. 9430).

Bank Vole (*A. pratensis*, *Baill.*).—The bank vole is not uncommon, especially in gardens, which appear to be the favourite habitat of this species (Zool. S. S. 9, 159, 240).

Common Hare (*Lepus timidus*, *Linn.*).—This species is very abundant, on the moors as well as in cultivated ground (Zool. 9430).

Alpine Hare (*L. variabilis*, *Pall.*).—The alpine hare is not indigenous, I believe, in any part of the South of Scotland. But of late years it has been introduced both in Peeblesshire (see Mr. Chambers’ History of that county) and near Muirkirk, on the borders of Ayrshire and Lanarkshire. In both instances it appears to be spreading, and it has been occasionally found of late on the hills of the south of Lanarkshire.

Rabbit (*L. cuniculus*, *Linn.*).—Very abundant and apparently increasing (Zool. S. S. 241).

Roe-deer (*Cervus capreolus*, *Linn.*).—Plentiful in all wooded districts where it is preserved. The wonderful history of the reproduction of the roe-deer, as elucidated by Prof. Bischoff, of Giessen, and other German naturalists, does not appear to be well known to English readers: I hope to revert to this subject at some future time (Zool. 9359).

Wild White Cattle (*Bos taurus*, *Linn.*, Var. *scoticus*).—The existence of the herd of these relics of ancient days at Cadzow, enables me to claim the “mountain bull” as a Lanarkshire quadruped. As I already mentioned the fatal “rinderpest” wrought sad havoc among the Cadzow cattle, but I am glad to say that the majority of them survived (Zool. 9518 and S. S. 242.).

Thus ends the brief list of our Lanarkshire native quadrupeds, for the want of a coast-line deprives us of the seals and cetaceans,

although the porpoise is said to have ascended the Clyde as far as Glasgow in old days.

EDWARD R. ALSTON.

205, Bath Street, Glasgow,
March 6, 1867.

Ornithology of the Firth of Cromarty.

By W. VINCENT LEGGE, Esq., F.Z.S.

DURING the snows of last month I spent three weeks at the very remote and defunct little town of Cromarty, and occupied myself during that time in shooting specimens of sea-fowl. I might mention that the Firth, perhaps the most magnificent harbour in the kingdom, is admirably suited as a resort for all manner of wild fowl. Entering from the Moray Firth through a sort of natural gateway, formed by two tremendous precipices, called locally "Suters," from an old Scotch legend, and which are exactly a mile apart, the Firth widens out into a splendid harbour as far as Invergorden, seven miles from the entrance, and then stretches in the form of a narrow loch, twelve miles farther inland, as far as Dingwall. The deep water and rocky entrance afford a likely haunt for divers and oceanic ducks; a mile or two up on the right hand side is a large shallow bay (Nigg Bay), uncovered at low water, resorted to by the largest flocks of Brent geese I have ever seen. Six miles farther up on the opposite side is Udel Bay, mentioned, I think, in one of Colquhoun's works, and where the fat old mallard and his companion the widgeon revel on extensive weedy flats; farther up still there is splendid wild-fowl shooting all the way to the head of the Firth. Talk, however, to a boatman in the Firth about the wild fowl and, what does *he* say?—"You may think, sir, there's plenty o' ducks and geese here, but Lor' bless ye, sir, there 'aint one quarter what there used to be twenty year' ago. Them punt-guns has frightened 'em all away, sir!" And what shall we say about the punt-guns: say! why—But we won't say what we ought; only, he who shall at some future day succeed in putting them down, if ever such a thing does happen, will, I know, receive the hearty thanks of every ornithologist and true sportsman.

But as to the birds: those of the gull family I met with or shot were—glaucous gull, Iceland gull, great blackbacked gull, lesser blackbacked gull, herring gull, common gull, blackheaded gull, kittiwake.

The common and herring gulls were by far the most plentiful though perhaps I am wrong in saying that the common was far more plentiful than the herring gull.

Glaucous Gull.—On the 12th, during a snow storm and high wind from the north-east, I shot one of these fine birds in beautiful immature plumage. He was soaring along over the beach in the teeth of the gale, eyeing the high-water mark at the edge of the snow, and showed not the least fear of me or my gun. His dimensions were :

Length from top of bill to tip of tail	-	-	2 feet 2½ inches.
Expanse of wings	-	-	5 „ 1 inch.
Wing from carpal joint	-	-	1 foot 6½ inches.

I saw an adult bird one day, but he did not come within shot of the boat.

Iceland Gull.—For a fortnight the snow lay thick and frozen down to the edge of the tide, and the weather was so severe that everything I shot, with the exception of ducks and geese, was miserably thin. Gulls are driven to great extremities in hard weather ; they seem but poorly able to look after the “commissariat.” There happens to be in the town a fish-curing house, situated on the beach : this was the favourite resort of hundreds of starving gulls, who floated lazily on the water near the shore, or sat in flocks on the shingle, regardless of passers by, while others, with appetites sharpened by hunger and by an odour more pleasant to their olfactory nerves than to mine, hovered over the sheds and eagerly snapped up the offal thrown from the windows. Among a flock of young herring gulls, who were watching for fishy heads and tails, I observed a pair of young Iceland gulls, one of which I was fortunate enough to shoot. In plumage he was the very *fac-simile* of his big cousin the “Burgomaster,” and was of exactly the same dimensions as a herring gull which I shot immediately afterwards. How Temminck regarded this species as a variety of the herring gull I cannot imagine, for it does not appear to me to resemble this latter in any one stage of plumage. The young bird mentioned and described by Yarrell, appears to have been a small specimen : he gives its length as eighteen inches, whereas mine measured twenty-one inches. The legs were flesh-colour, not *yellow-brown* ; also Yarrell gives the bird of the young “Burgomaster” as *pale brown* and the tail as *uniform yellowish brown*. The bill of my gull is flesh-colour and the tail-feathers grayish white, barred with pale brown. Both specimens are now in the Museum of the Royal Artillery Institution at Woolwich.

Great Blackbacked Gull.—Plentiful in the Firth and outside, but no amount of cold seems to make this king of gulls tame. The old birds were always seen singly, and the young ones in small numbers together. The former I generally found on the mud flats in Nigg Bay, on the opposite side of the Firth. These fine old fellows have a habit of flying over a boat, sometimes high in the air, and uttering their far-off sounding “kow-kow,” as if they objected to your presence in their haunts. One morning I was out at day-break in a duck punt (minus the punt-gun), and a ponderous individual with a back as black as night loomed up from the distance, flew round once or twice over my head, uttering loud cries, and then turned away; but thinking he had not inspected me enough he came back, and after giving vent to his opinions in the same manner he vanished in the gray dawn. Can any of your readers assign a reason for this habit? I have often observed it. Perhaps my friend was bidding me “good morning!”

Lesser Blackbacked Gull.—Not so plentiful as the great blackbacked gull: those I observed were young birds, judging from what I shot of course.

Herring Gull.—Very plentiful. The old birds and young ones keep very much apart. The former I used to find on the sands of the opposite side of the Firth, whereas the young ones, with occasionally an old bird or two, frequented the “curing” house in large numbers. They were very thin after a fortnight’s frost. These birds became very tame and fearless: one day I saw a pair of old birds alight on a wall within a few yards of the door of a cottage, and at other times I have seen them hovering over the back yards of the houses. They do not seem to suffer so much from the hard weather as the blackheaded gull; they are not particular what they eat: they frequented the sheep-folds and turnip-fields where the snow had been beaten down by the sheep, and on coming south, after the thaw had set in, between Inverness and Nairn, I saw what appeared to me from the carriage-window to be a dung-heap so thickly covered with herring and common gulls that one could with difficulty have found room to stand on it.

Common Gull.—Very common in the Firth, with a very large proportion of young birds, many of which I shot in every variety of plumage. They were always to be seen in great numbers, seeking their food on the edge of the ebbing and flowing tide, and picking up what they could find floating about in part of the fishing village.

Blackheaded Gull.—This little gull I found more numerous than any other species, and more pinched by the hard weather; some I shot were mere lumps of feathers. The lover of sea-fowl cannot but admire the way in which these little fellows crowd in flocks, and hover over any piece of water containing any floating matter that they seek, or how they flock with beating wings round the fishing-boats as they come in from the sea, and gracefully stoop with hanging feet to pick up what Fortune finds for them on the water.

Kittiwake.—Scarce, so far as I could see. Do not these birds come farther south in the winter? We have very few on this coast, of course on account of the flats, which are only frequented by wading gulls.

Bean Goose.—I saw a small flock of five geese one day, which I fancy were of this species, but they did not fly near enough for me to observe any distinguishing characteristic, with the exception of their large size and gray colour.

Brent Goose.—These birds are in the proportion of a hundred to one of any other wild fowl in the Firth. Their numbers are extraordinary: no matter in what part of the Firth your boat might be, you were sure to come upon brent geese (they are called “barnacle geese” there)—the real bernicle I neither saw nor heard of; while hundreds were on the “muds,” feeding, flocks rushed about here and there over the feeding-grounds with their wild note “like a pack of hounds in full cry,” and at the same time other flocks were scattered here and there over the Firth resting on the deep water. They were always “on the move,” like restless spirits, and tended greatly to enliven the gloomy frosty days, of which we had not a few, with their lively habits and noisy tongues. Their chief feeding-ground is Nigg Bay, on the Ross-shire side of the Firth; very few ever frequent Udel Bay, the resort of the mallard. This goose dives for some distance when winged and pursued in a boat. I could not help admiring the handsome graceful head and neck and wild eye of a wounded bird, which I was one day chasing. He reminded me something of the wild-looking black swan of Australia: two or three of his companions were loath to forsake him, and flew round him once within shot; had I had a breech-loader I should have added them to my bag: There was always a great movement at sunset: immense numbers used to fly out to sea regularly every evening, and this used to puzzle me, as they were always in the Firth again a few hours after; this seemed quite

independent of the tide. Mallard and widgeon are plentiful, but far wilder than the geese: they resort principally to Udel Bay, not appearing to find food on the "flats" frequented by the geese.

Longtailed Duck.—I met with a small flock of this beautiful duck at Ballintore, a village on the east coast, some eight miles from Cromarty, and a few days afterwards found three or four pairs in a sheltered little bay under the steep cliffs of the North "Suter." They were driving almost in the surf, so close were they to the rocks. With the rocks and steep hill covered with snow down to the very edge of the surf, and the enormous icicles, scores of feet in length, which hung from the dark cliff, they might well have imagined themselves in their accustomed arctic haunts. I shot a beautiful male in the water, the rest of the flock taking flight; a female, however, dropped winged to the gun of a friend in the boat. They dive very expertly, as we wasted several barrels before we procured our wounded bird. These birds, I hear, frequent the Firth every winter during hard weather, the inhabitants being quite familiar with them and calling them "Kamleck's." The male was smaller than the bird described by Yarrell, and the part of the beak intermediate between the base and the nail was a delicate pink. Yarrell gives it *pale reddish brown*: in other respects my specimen corresponded entirely with the description given by him.

Pochard.—I came on a male pochard one evening sitting on the rocks, he scuttled down some distance into the water upon my making my appearance round a corner, and I then shot him. Pochards are not so plentiful as other oceanic ducks in the Firth, but I several times met with them near the rocks off the "Suters."

Goldeneye and Scaup Duck.—Both in small numbers about the rocks at the entrance and on the water in the Firth, the goldeneye the most plentiful of the two. They were very shy, seldom allowing the boat to get within shot; but they often flew near us, when on the wing. Nearly all the goldeneyes I met with were females, and these associated together in small flocks up to a dozen in number. They are extremely lively and expert in the water, the whole flock sometimes diving instantaneously together. I found a male scaup one day sitting on a large piece of ice in the midst of a large "pack." He had evidently alighted on the ice, for he was in rather a predicament, unable to reach the water, and unable, I believe, to rise from the ice, probably on account of the position of the legs and the short wings. I do not

think he was wounded, as I knocked him over, and he then got into the water between two pieces of ice, and diving came up outside the "pack," requiring then a considerable amount of hitting before I secured him.

Oystercatcher.—Large flights of these birds, flying in strings like wild fowl, used to enter the Firth at sunset, and betake themselves to the flats in Nigg Bay. I found them also, always in single examples, on the rocks of the Suters at low water. They were miserably thin; one I shot had the breast-bone almost cutting through the skin. They feed on the small winkles from the rocks.

Curlew.—Curlews were driven to dire necessity by the snow and frost, one or two having been taken in fields by the hand, hardly able to fly; one of these that died and came afterwards into my possession was so thin that it could be held up by taking the breast-bone between the finger and thumb. I am sorry I did not take the dimensions of this bird; he was the finest curlew I ever saw, his bill measuring one inch and a half longer (from measurement) than that of any specimen I had shot, and when in good condition must have been a magnificent bird. Contrary to their wary habits they often flew right down upon the boat, and in this manner I shot several: those, however, that were found feeding on the flats were as watchful and wild as ever, getting up at the least sound of the paddles, in the twilight of the morning, piercing the air with their shrill, clear note—a sound musical to him who loves Nature, and thoroughly belonging to, and ever in harmony with, the wildest and loveliest scenes of our shores.

Little Auk.—One bird shot on the 23rd, in the Firth, by a friend. The little auk is rare, I should say, in the neighbourhood.

Great Northern Diver.—Immature birds tolerably numerous in the Firth, and frequenting the shallow water on the sand-banks, as well as the deep off the rocks and outside the entrance. I saw one of these fine birds vainly endeavouring to get a "dab" down its throat. The little fish, however, proving altogether of the wrong shape for his dinner, he was obliged to give up the attempt. I shot a young specimen one day, which I wounded in the act of diving, rather a rare piece of luck I imagine: he weighed eight pounds and three quarters, remarkably heavy for his size. They are easily got near by keeping quite still in the boat, and then, by the old plan of putting on the "spurt" when they dive, a tolerable shot may often be got at them.

Redthroated Diver.—More numerous than the great northern diver,

most of them young birds. They are all called "loons" in the neighbourhood: this is also the name by which these divers go on this coast.

Cormorant and Shag.—The common cormorant is more plentiful than the shag; they associate together in roosting, in great numbers, on a lofty cliff in the South Suter. They are both called "scarfs" in the neighbourhood. Every morning the cormorant might be seen winging his way, generally alone and flying near the surface of the water, round the rocks and up the Firth, to some chosen feeding-ground, and returning in the evening to roost, nearly always in pairs, and flying high in the air. By far the greatest number, however, I met with in the deep water at the mouth of the Firth, where they might be seen diving sometimes in what I know to be tremendously deep water, and at other times fishing near the shore, or sitting lazily on the point of some favourite rock watching the fishermen taking up their nets. The cormorant and his brother the shag are certainly fine birds, and how graphically Mr. Blake-Knox describes them, when he says of the latter "he looks like some evil spirit coming upon you, his body looming tremendous in the fog." Their diving powers are very great, but they go to work in a different way when they dive for safety. It is amusing to watch them when, unmolested, they are fishing; how they jump out of the water, turn a "somerset" and take a regular "header" into the finny depths; but then when they are "up for diving," and you have fired at them once or twice, they swim low in the water and are out of sight like a shot, as quick as a northern diver. One sunny frosty day I watched numbers of them sitting on their perches in the great cliff I have mentioned above, drying themselves, opening their wings ever and anon, and then launching themselves heavily into the abyss they would fly out in a small circle and return with a soar to their nest. I often saw them, like the great northern diver, endeavouring in vain to swallow "dabs" and flat fish, and after tossing up their heads and shaking them from side to side they would throw away the fish, and generally rise from the water and fly away. While writing on the cormorant I cannot forbear to remark on Mr. Blake-Knox's excellent letter on the shag. It is exactly in coincidence with my little experience when he says "they do not dive at the flash." I have always noticed that the shot from the gun always strikes round the shag or cormorant before he dives, and have often wondered how he escaped. The fact is, their feathers are saturated with water and the shot glides off them like so much india-rubber, and

thus, if the head and neck escape, they are all right. The suggestion which Mr. Blake-Knox makes about the use of the stiff, long tail, is, I am convinced, the right solution of the question: any one who gives a thought to the matter must see what a splendid lever this singular tail is to the bird in assisting it to spring out of the water in diving, and it probably also is a good means of steadying it, when, with its body in a perpendicular position, it is forcing its bill between the stones at the bottom. In the first instance the tail acts in the same manner as that of the kangaroo in leaping. Mr. Blake-Knox may be quite right in saying that these birds do not gorge themselves after the manner of the gannet, for instance; but I will relate the following fact which seems to me to bear somewhat upon this question. While drifting along the other day, near the edge of a mud-flat in Nigg Bay, we came upon a cormorant sitting bolt upright on the flat, about two hundred yards from the water, and looking in his loneliness something like one's idea of the "pelican in the wilderness." Upon my friend getting out of the boat and walking with murderous intent towards him, he presented a ludicrous appearance; he was sitting with his back towards his approaching enemy, a position which he did not alter, but looked askance at him over his shoulder and twisted his long neck and head from side to side, after the manner of a weathercock in a gusty wind. There he remained till a deliberate "pot" knocked him down, when he commenced to decamp by flapping along the sands; he was caught, however, and showed considerable fight. He had not the appearance of being gorged. I did not open him, as I did not give much thought to the circumstance at the time, and as I wished to send him away in the flesh along with other specimens. What was the cause of his inactivity?

Grallatores.—The commonest of this class was the ringed dotterel. They frequented the shingle in small flocks, and in twos and threes. They became so tame during the frost that I often observed them running about close to the fishermen's huts. Redshanks, dunlins and a few godwits I met with on the flats of Nigg Bay; and had I taken the trouble to visit the sands there and collect specimens of this family I dare say I should have met with many other members of it, as the locality was very favourable to their habits.

Rock Pigeon.—There are numerous caves in the rocks and cliffs of both the Suters, some of which swarm with these birds; they are associated largely with tame pigeons, which may easily be detected by

their plumage as they sit on the ledges of rock or dart out in little flocks from the caves.

Cornish Chough.—I saw one of these birds in company with a flock of rooks on the shore of the Firth. He was flying down with them, in a high wind, to the beach, and resembled them in action, flight and size, being only distinguished from them by his long red bill. A friend tells me that these birds still breed in considerable numbers on the coast of South Wales.

P. S.—Referring to Mr. W. Jeffery's notice of my remark on the note of the sedge warbler (Zool. 9837), though I used the words "*it imitates*, in quick succession the sparrow, the lark and the swallow," &c., I meant rather that its warbling *was an imitation* of these birds, not that it mocked them as a mocking bird. I am inclined, too, to think that these are the real notes of the bird, for it generally, so far as my experience goes, commences and ends at one time the same as at another.

W. VINCENT LEGGE.

Shoeburyness, February 12, 1867.

Erratum.—There is an error of the printer's at Zool. S. S. 603, line 14: instead of "laid the eggs *in the bath*," it should be "*on one side*."—W. V. L.

Ornithological Notes from the County Dublin. From the Log of the
"Gray Gull." By HARRY BLAKE-KNOX, Esq.

(Continued from Zool. S. S. 483.)

SEPTEMBER TO THE END OF 1866.

Migration and Hybernation of the Corn Crake.—September 1. To-day, while waiting in Dalkey Sound to shoot some great blackbacked gulls, half a gale coming from the southward, I saw two herring gulls feeding on the remains of a dead corn crake. On taking it into the boat I found it quite fresh, and the lungs only devoured; its body and viscera were literally packed with fat of the whitest and hardest condition, like what we find on our fine Christmas capons after a good night's frost in dear old jolly Christmas-week, dead of course, and decked with holly in the butcher's stalls. How I ramble! but then I am a gray gull, and perhaps by one of my ferocious species, vagrants always, was the poor corn crake struck down, or perhaps, becoming exhausted in its autumnal rambles, was drowned: this latter point I

could not determine, as the lungs were gone. That it should attain such a quantity of fat just before migrating seems very inconsistent with a long and fatiguing flight; such a bird I would expect, when flushed, to fly for the nearest hedge, skulk there and not rise again, as they often do in autumn. To dream of one of my gamey little bloods in this state of fat, and I trying to get even ten miles an hour out of him, would be a shocking nightmare to me, and I am sure that a man in the same state of fat would think it no nightmare to have to walk smartly for one short hour; but then all this may have nothing to do with birds: those who tell us that this fat is for sustenance in the "long flight" at all events will say so. Somehow I cannot divest myself of the belief that the corn crake hibernates, notwithstanding my having found it repeatedly dead in the sea, both during autumn and spring, which many would say should prove migration to the most sceptical. I do not for one moment doubt that it leaves Ireland in numbers in the autumn, but where does it go? Does it hibernate where it goes to? Is it to be met with anywhere in numbers, flying or running, during our winter? Does it only crake in its spring or summer haunts? In support of hibernation, we have this great amount of fat, coming on winter (corn crakes often burst from fat when shot and fall to the ground), which all hibernating animals attain; the number of uninjured and healthy birds found in Ireland during winter, their peculiar skulking habits at this season, the old hollow ditches they frequent, their peculiar apathy and disinclination to fly, and their early appearance, without "craking," along the sedges of rivers (I have seen them in the middle of March), which would be the first places they would make for after their winter rest. I do not see why hibernation of birds is so much scouted, for scores of animals and millions of insects do so. Many fishes, too, become so torpid that you may fish weeks and not get one, yet some fine day dozens of the kind you look for will reward your patience; still you have been told or read somewhere that that species migrates from our shores in autumn, "to seek more genial seas," and that is why they are not caught in winter. The subject is very far from being absurd, though many have considered it equally so with "corn crake turning to water rail." Though I knocked down a ditch some years ago in January, and turned out three living corn crakes, and ate them too, still it stands for nothing—no "big gun" of an ornithologist saw it, therefore "I must have mistaken the bird; but the next time send us the ditch and the bird in it—mind, in it—and *we* will tell you whether the birds are corn crakes or not."

No one but the "we," of course, can discern a corn crake from a water rail, a singing redwing from a throstle, a viper's young one from a viper's tongue; nowhere but in London can a thing be solved. In the year 1861, during November and December, I used frequently to turn out of a particular hole one of these birds; I caught it at last one night in the hole—nest, I might say, for it was thickly bedded with leaves from a neighbouring dunghill, on which beech-leaves had been thrown, but I let it go after some time—in honesty, not through kindness, but because I could not help it, for it could pass through any hole, almost, as Paddy used to say, "as limber as a glove." I could also state many instances of dogs chasing corn crakes in winter to holes, and in one case remember how nearly I was summoned for tearing down a man's ditch, "in pursuit of rats," as he said, though he had two eyes and saw the bird run from hole to hole. More learned men than he may have often thought the same thing. Hybernating, in my view, would not mean a dead, torpid state; I should consider it a sleepy inactive state, —a lying up in cold weather and a temporary arousing during genial days,—and in this state I have met the corn crake in winter. I do not say distinctly that it does not migrate, for though I am a sea-soaring bird I can tell but little of its passages across the seas.

White Martin.—Sept. 3rd. My gunmaker, Mr. Weeks, of Essex Quay, Dublin, very kindly presented me with a stuffed specimen of the martin in a creamy white state of plumage. Like all white examples of this bird that I have seen, the natural white spots on the tail show much whiter than the surrounding parts. This bird was killed at Balbriggan, in this county. Notwithstanding that it was hard shot, had laid a day and a half in the shooter's pocket, was sat upon, and lastly finished by one of our atrocious Dublin stuffers, some resemblance to the martin is luckily to be seen.

Migration and Powers of Flight of the Redthroated Diver.—September 5th. To-day, while cruising in the Bay, I saw the first red-throated divers of the season: there were three in all, and young birds of last year, as I could distinguish by the clear white of the speckles; adults in September are always in faded nuptial garb. This is a very early appearance, October being the general month of arrival. Their stay away this year has been little better than three months, as many were off the coast as late as the middle of May: I count this early arrival as a bad omen for an abundance of this bird this year, and so much the worse for my researches; but I cannot repine—they were plentiful enough last year, goodness knows, and let the northern diver

have his turn now. Is it not strange how they take year about to come in numbers? I have always remarked when sea birds arrive early in autumn they migrate further somewhere,—of course I do not know where, and I will not copy the hackneyed expressions, “sunny seas,” “genial climes,” “balmy south,” &c., but they do not, at all events, winter off our coasts in as great numbers as when they arrive late. September 28th. To-day I shot in Dalkey Sound a very tidy little specimen in its first plumage, and though he was but a “gosling” (for he could not have been more than three months old) he flew like a—what?—like a redthroated diver—yes, nothing flies better—like a redthroated diver at the approach of the boat; but his “winnowing pinions” were to meet a premature check, and he now stands amongst the duplicates in my collection, labelled “First Plumage.” Oh! ye that put faith in those whose writings tell you that the Colymbi rarely seek escape by flying, and the northern diver never, will be sadly disappointed when you come to chase them. Scores upon scores of times have I been compelled to give up a chase in consequence of their taking wing—yes, and at times, too, when my wind and sinews would be settled to their work, and my boat feel as if a part of myself—when their life was mine as certain as the oar in my hand if they kept to diving; aye, and they would know it, too, and take to flight, but often then the floating case of an exploded cartridge could tell a tale of a flight cut short. In spring the redthroated and the northern divers are next to impossible to procure, on account of their taking wing half a mile from the boat. When on the wing, however, they are great fools, and will fly within oars’ length of the boat they so much dreaded when swimming. They are extremely hard to shoot on the wing when giving a side shot, on account of the velocity of the flight: I find to aim three feet ahead quite little enough for every ten yards, so that a bird at forty yards will require an allowance of twelve feet.

The Redthroated Diver no “Redthroat” in Winter.—October 3rd. After a very arduous chase to-day, I killed, alone and unaided, five redthroated divers: three were adults in the autumn moult, one (fired at in despair) had the head cut off by an Enfield ball, two were young of the year. Two of the adults were in strong moult, there being a good mixture of both seasons’ feathers; the third, a good shot specimen, is in the faded summer or my adult summer “plumage B,” in some parts showing new feathers of the winter, but on the whole being in adult summer dress: he is in my collection. This bird I think should prove to the most sceptical that the redthroat, &c., is only a summer plumage.

The two other adults Temminck and his disciples would call in their second year. Many of these autumn adults as I have killed, I never examined any so closely as I did these: there were the faded and worn feathers of summer loose and sapless in the skin; there was the body thickly covered with the new and speckled feathers of winter, in all stages of maturity, from the incipient pen to the perfect feather; there was the *worn* and *loose* red throat concealing the sprouting white feathers; there were the lead-coloured sides to the neck and the streaky mane—all very volatile to the touch, and giving place to the winter garb; there was the black bill turning into livid, and there were the *ovaries that had multiplied their kind*.

The Redthroated Diver no "Redthroat" till Two Years old.—October 28. Of four redthroated divers shot to-day I picked out a most valuable bird to me—a long-known and long-looked-for link in my present series of this bird: it is the second autumn moult, and connects the second summer and second winter. Notwithstanding what we read I presume that most *observers* know that the redthroated diver assumes no red or gray on the throat till the second spring; that is, not till nearly two years old. I can now illustrate this both in the first spring moult and the second autumn moult.

Scarcity of the Redthroated Diver in Dublin Bay at the end of 1866.—December 26th. My foretellings are right. Northern divers, market stocked; redthroated divers, a great demand, but no show; a few yearlings changed hands. The Fenians can have nothing to say to this, as the prohibition to carry arms has shut up many an old leveller. For the "good of trade," we hope Government will keep all marauders off Dublin Bay except the "Gray Gulls." Our opinion is, if such was done things would look up again.

First Arrival of the Purple Sandpiper in 1866: Habits.—Oct. 20. Winter has set in; I saw the first purple sandpipers of the season. Dear little creatures! you are just as tame to-day as you were in those good old years, alas! now past, when I, in love with you, would lie down beside your little flocks and watch you feed and pick and play not an arm's length from me, and oh! what thrills of joy your sweet low plaintive notes, when two met, would send to my heart, for I then knew few had ever heard such notes, or had ever been so near to you in *real life*, or ever seen that deep purple back shine like some rich topaz beneath the rays of the setting sun, when every sea-drop hanging to the weird brown sea-weeds were sparks of fire, and the sea laving our granite rock with ceaseless murmurs seemed throwing mimic waves

of gold to our feet, as if rejoicing that man could show some love for aught but the gold it seemed to be. How few have seen those nimble feet pattering the edge of the receding wave and not heeding the returning swell, except it rose beyond the tarsi, and when it did to see those white-marked wings open and lift their resplendent burden, uttering a soft sweet cry to some shell-grown pinnacle, on the mural sides of which, going down, down, down to the "mermaid's caves," bloom the gorgeous sea anemones, bright star-fish, feathery Algæ, and pearly shells. How few have watched you, when your repast was done, run with wings elevated and meeting above the back, and chase each other from point to point in playfulness and joy; then stretched in noisy flight out on the now darkened sea, but only to return and settle in a little clump, with low crouched heads and down-pointing bills, till hunger again calls forth your latent energies. Peace! thank God that I have seen it, and know that it can be met on earth! Peace, rudely broken peace by him who tells you this, for that sharp-ringing crack, that gray-looking vapour stealing away on the calm night air, tells a tale of suffering, and yonder poor "black maw" (great black-backed gull) floating beneath the cold silvery moon, some hours risen, denotes the victim. This was his roosting rock, and I was covetous. * * * *

On the Autumn Moulting of the Gray Phalarope.—November 1st. The Rev. M. A. Mathew, writing from Weston-super-Mare (Zool. S. S. 500), informs the readers of the interesting fact that the feathers of the phalarope rejuvenate or transmute instead of moulting in the autumn. Though I never had the pleasure of noticing this in the phalarope (though I have in many other birds), any examined by me changing the plumage by a perfect moult, still I observed a very great peculiarity in the texture of the feathers, that is their great lightness and transparency. In the winter gray feathers this transparency is most apparent, for when overlapping a summer feather the summer feather can be seen through it as through a mist. This is decidedly the frailest and lightest of our birds for its size and bulk. It is a beautiful little fairy creature; and the most innocent, harmless and confiding of our birds. What a pity its innocent habits, and its wind-bound and forlorn condition, did not earn for it a better reception at Eastbourne and vicinity: truly Mr. Dutton's account, though well meant and not inculcating himself, is a very butcher's bill.

Migration of the Blackbird.—November 5th. There have been inquiries in the 'Zoologist,' as to what becomes of the old robins in

summer, but I would put another question, What becomes of black-birds, old and young in the same season? I am sure that many must have noticed that during the spring they breed in numbers, and rear quantities of young, but from June very few are to be seen, except those that frequent gardens; I speak of Ireland generally: I know that in September and October miles of hedges may be traversed and not one seen, but in November, when the haws are ripe, every hedge and garden is full of them, old and young. Nowhere can we go country-ways but we hear their cheery cries, and I know persons who have at this season shot several dozens in a day for making pies. They are capital eating, at this time of year, if treated like game, kept till high, and served up underdone. In a few weeks the bulk of the haws are devoured, and the body of the blackbirds disappear with them; I attribute this to the tide of emigration; but still, where do our breeding birds and their young go to during summer. My theory would be, and take it for what it is worth, that the birds who have successfully reared their young in time, who have not been delayed by robbery, and many of the young migrate, southwards after the breeding season to meet the early fruit, and that they gradually advance northwards again in a body following the ripening haws, and then winter as best they can in their old spring haunts. Constant watching has confirmed my belief in the migratory part of this theory.

Nocturnal Melody of the Robin.—In the 'Field' newspaper there has lately been a discussion concerning "nocturnal melody," some blaming frogs and others birds of making a low, plaintive, ventriloquous "weet-weet." All through I believed this to be simply the note of the common sandpiper, and I remark that others are of the same opinion, though not the first speaker. Well, I am not going any further into this class of nocturnal melody; I wish to state another kind, and also the bird that makes it; I allude to a long drawn "iz-weet," though sharply and quickly pronounced, if a long-drawn sound can be quickly sounded, made by the robin, rarely at any time but night. At first on hearing the cry, whilst night-shooting on our wild granite-coast (by-the-bye, during winter the robin is very partial to our sea-rocks, cold and bleak as they are), I could not think what made it: its lowness, yet piercing distinctness, now in my ear, now a long way off, yet always proceeding from the same spot, used to raise most uncomfortable fancies in my mind, and also cause a peculiar tingling sensation about the scalp—next thing to the hair standing on end. Although for ghost, mortal or danger I do not know fear, nor am I at all

superstitious, though many a tale of dread is told of the same spot, yet whenever I hear that unearthly “iz-weet,” though I know it now to be the robin, having seen him make it, I always feel as if something was wrong with the roots of my hair. So much for “weird notes.”

Food and Destructiveness of the Wood Pigeon.—I was very glad, on reading the ‘Zoologist’ this month, to find a voice from Ireland, from my neighbouring county Wicklow, and one so accurate and to the point on the destructiveness of the ring dove (S. S. 498); my observations of this bird, being made in this and Mr. Barrington’s county, are fully in support of the great mischief done by the “wood-quest” to the agriculturists at certain seasons of the year. Frequently I have taken a measured pint of wheat from the crop of an individual, and it still feeding at the time of being shot; they are also I know very destructive to turnips. Wheat is the favourite grain, barley next, and oats least sought after, I should say on account of the amount of chaff adherent to the grain. They prey greedily on turnips, rape, vetches, peas, &c., feeding both on the young shoots and the seeds; among various other luxuries may be particularly mentioned beech-nuts and oak-mast, the berries of the ivy, holly, &c. Shoot the “quest” by all means in season; as a good eating bird, not a whit inferior to the partridge if similarly treated, but do spare the wary bird grown tame, for who does not know of its extreme tameness and confidence in man during the breeding season. “Coo, coo” on, blue wood-quest, for while there are wide demesnes with their spreading trees, as willing to receive your airy nest and your two chalk-white eggs, as are the kind hearts of their owners to grant you an asylum, you will never be exterminated. *Where do they go after the corn is gleaned?* is a question I have often heard put. There is an answer to this question prevalent in many parts of Ireland. “To the thick woods, to escape from the hawks while their quills are moulting.” Not so ridiculous an answer either, as that is the time of moult, and hawks are their great enemies; but still I scarcely consider it the thing, and would be more inclined to think that they visited these thick woods in “quest” of the beech and oak-mast. They certainly do leave the open country at this time of year, and are rarely seen except flying from one wood to another. There is another fact that not a quarter of the birds seen in the corn season belong to the locality.

Abundance of the Bullfinch in Dublin in 1866.—I never remember to have seen the bullfinch so plentiful as it has been this October and

November ; a wave of them seems to have passed through the county southwards. Rarely would you pass a hedge without seeing some of these beautiful creatures, or hearing their melancholy "T-you." The bills of a few shot were deeply stained with blackberry juice, and I watched dozens feeding on the wild fruit.

Chaffinch: Separation of the Sexes.—We had immense flocks of chaffinches this year: their great body were females, sprinkled however with males. These flocks frequent old potato-lands more than any other, and I strongly think are composed for the most part of foreign migrants. Plenty of males are to be seen with their females all winter through, by the roadsides and elsewhere, in this county ; these I look upon as our indigenous birds.

Second Occurrence of the Blackthroated Diver in Dubtin Bay in 1866.—On the 19th of November I shot a bird of the year of this rare diver.

Occurrence of the Longtailed Duck in Dublin Bay in November, 1866.—There was an example of this herald-duck shot in the Bay this season. Through some oversight I omitted this species in my list of the migrants to this county in winter. I have seen four or five examples, chiefly young birds shot on the coast, and Thompson mentions several as occurring on our Dublin shores. Will readers kindly add "*Longtailed Duck*, occasional winter visitor," to my list in their '*Zoologist*' for 1866.

Pied Blackbird.—December 15. To-day, whilst driving to Collery to shoot, I saw on the road, outside Sir George Hodson's, a pied blackbird: his misfortune did not tempt me to shoot him, so I hope he is still to the fore among the baronet's beautiful evergreens.

Pied Woodcock.—I had just shot two snipe right and left on the Sugar Loaf, when a woodcock nearly all white sprang. I had a cartridge in only time enough to hit him hard without killing him.

Guillemot in Summer Plumage in December.—December 20th. I was greatly surprised to see a guillemot in summer plumage bearing down upon me: enormously rapid as was its flight as it passed me I aimed the right distance ahead, about fifteen yards; and killed it. So great was the velocity of its flight that it progressed about thirty yards, spinning like a wheel before falling. The secret of the reputed impregnability to shot, said to be possessed by the feathers of these birds, lies in not aiming enough ahead. I can kill them handy enough with No. 7 on the wing, and my little breech-loader, made by Weekes

and Son, of Dublin, can lay low the biggest goose or cormorant with the same shot at thirty yards, and with No. 2, my favourite grain, I fear nothing up to fifty yards. Many have told me that they aim but a foot ahead; they of course strike the spot aimed for, but the bird leaves the shot eight or ten yards behind him. This bird was in full fresh summer dress, the head and neck still moulting, the sprouting feathers being black; in the chin were some white winter feathers. It was not that the bird had retained, by bad moult or sickness, the summer dress of 1866; he was assuming, in December, 1866, the plumage for the summer of 1867. Such a bird I should have expected to meet in April. May not this account for some of the "red throats" and summer plumaged Colymbi found in winter? It is decidedly, though, an abnormality, as the bird may be met in thousands half in winter and half in summer plumage in March; and the same way, though *vice versâ* in August and September.

Shag crested at Christmas.—December 24th. The "Gray Gull" was among the shags to-day; they are growing scarcer every year, I am sorry to say; this winter they have almost deserted the Dalkey shores. I saw a good many in this their loved winter haunt, but very local—a sad sign this localness, and one I dread. I wished to prove clearly to all concerned that they are crested at this season, so I limited myself to kill three. Selecting my old position I quickly shot the desired number as they flew past, and also a northern diver on the wing. Two of them unfortunately were only in second winter (see S. S. 256): when the plumage is wet it is difficult to distinguish them at any distance from the adult. The third also had never bred, being in its third winter (S. S. 256), but she had, however, and early too, began to assume the crest, quite enough to corroborate me. I forwarded this bird's head to Mr. Newman, as proof of my former statement, and I hope those who wrote to me as being too sweeping in my writings will be now convinced of their injustice; I hope also to live to sweep some of the mildew off the common things of the sea. Ornithology has so long been governed by men unversed in its "rude realities," and most of the standard works are so full of "wild fancies," that I stand prepared for any amount of contumely my *optical observations* may engender. I consider that the sooner ignorant notions are dissipated the sooner will true Ornithology flourish. I will therefore in my writings quote and refute as many of the reigning absurdities as I can, and although I may get the name of being dogmatical I will never, to use a vulgarism, "suck up" to the writings of any man, when

I find that he has written at random, or, worse again, copied from the errors of others. I saw many adults fully crested, but had promised to myself to kill but three, so I did not destroy any more.

The Cormorant has not the White Leg at Christmas.—Many cormorants passed me, and none had their “shirts sticking out of their breeches,” or, as Thompson says, “the watch under the wing.” In another week this plumage is assumed.

Missel Thrush.—December 25th. The missel thrush was singing on Christmas day.

The Second Primary of the Wood Wren.—Notwithstanding the dissimilarity said to exist between my sketch (S. S. 300) and the second primary of a wood wren possessed by Captain Hadfield, I can only say that very many agree with my figure. If it had been artistically done it might have looked better and been simpler in its parts had the shaft been brought in, but as it stands it is correct, and could not be otherwise, as I laid the feather down and *traced it for accuracy*. The relative lengths and the tips of the feathers are the only parts to be looked to for distinction. It will be seen that the points resemble three very common penknife blades in that part. If I am not mistaken I laid Captain Hadfield's feather on my sketch, and found that when pressed flat it just fitted into it. No feather is naturally flat, and I may have erred in making my sketch so, but it is of no consequence to the practical man; the point and the length, where the distinction lies, are accurate. As to Macgillivray's outlines, I find them very inaccurate: I will say no more, but try them. Let it be understood I do not run down Macgillivray: I consider his work on birds the best in Britain, that is the letter-press, and his vignettes about the worst of any modern authors; they spoil the book.

HARRY BLAKE-KNOX.

Dalkey, County Dublin.

Ornithological Notes from Shetland. By H. L. SAXBY, M.D.

(Continued from Zool. S. S. 442).

1866.

Ruff.—Two specimens of the ruff, a species quite new to our Shetland catalogue, were obtained in this island in September, one on the 8th, the other on the 26th. The first, a female, was shot in some marshy ground near the Loch of Cliff. The bill was nearly black,

rather paler at the base; the legs and feet lead-colour. The second specimen, a male, was by far the larger of the two, measuring twelve inches and a half in length, the female being two inches and a half shorter. They were much alike in plumage, but in the male the bill was yellowish at the base; the legs and feet dark dingy yellow. It was shot on the beach at Baltasound while feeding with some tame pigeons. The stomachs contained small coleopterous insects and a little sand.

Ring Ouzel.—On the 30th of September, during a strong east wind, a young female ring ouzel was shot at Halligarth. The stomach was full of rowan berries.

Osprey.—A young male of this rare species was brought to me on the 1st of October, by a Burrafirth man, who had just found it, struggling with a broken wing, upon a piece of rough ground near the sea. The feathers of the head and upper surface were of a much darker brown than those of an adult, their pale yellowish white edges causing a very beautiful appearance, at the same time affording proof of the immature age of the bird. The stomach was quite empty.

Turtle Dove.—On the 4th of October (wind S.E.), a turtle dove appeared at Baltasound, where it remained nearly a week.

Redbacked Shrike.—I shot a young male redbacked shrike at Halligarth on the 5th of October. This species is not included in any catalogue of Shetland birds, nor, indeed, can I hear of an instance of its occurrence in any part of Scotland. I have carefully preserved the skin.

Little Grebe.—The little grebe is never common here, but this winter the number observed has been rather larger than usual. An adult female, shot on the Loch of Cliff, on the 29th of October, is now in my collection.

Bohemian Waxwing.—An adult female of this beautiful species was shot at Halligarth by Mr. Thomas Edmonston, jun., on the 30th of October. It arrived on the 29th, during a gale of N.W. wind, which had probably separated it from a flock. We made a most careful search in every likely place, but were unable to meet with another example. Upon the secondaries of the left wing there were four of the well-known wax-like appendages, on those of the right wing only three. The yellow tips of the tail-feathers were much paler upon the left side, and the feathers themselves were slightly

longer than those of the right side. The stomach contained a few rowan-berries.

Little Auk.—On the 30th of November, during a gale from S.E., a little auk was found in a wet ditch not more than fifty yards from the sea. The stomach was quite empty.

HENRY L. SAXBY.

Baltasound, Shetland, December 31, 1866.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from S. S. 548).

JANUARY AND FEBRUARY, 1867.

Plovers, Golden and Green.—The sharp frost, commencing with the new year, occasioned a general exodus of plovers from the North Lincolnshire marshes; and on the 2nd of January not one was left in those places where a few days previously they had congregated in thousands. It has often puzzled me where all the plovers go to during a season of frost and snow, certainly none remain here, or on the Lincolnshire sea-coast; and when all places are alike in our Island, as during the severe weather in January, the earth frost-bound, and with a deep covering of snow, they may probably leave the country altogether. Perhaps some of the numerous readers of the 'Zoologist' will say whether they observed any unusually large flocks of both these species in any locality during the continuation of the severe weather in January. If they remain in England I am quite sure that the advent of these immense flocks of plovers in any other quarter of the kingdom must attract attention. On the 23rd a rapid thaw commenced, and on the morning of the 24th the marshes were clear of snow; and on this morning, a few hours after the disappearance of the snow, considerable flocks of golden plover had returned to their old haunts. The peewits did not, however, come back till fully ten days after this date. I was surprised to find, out of some twenty golden plovers shot in the marshes on the 9th of February, one which had nearly acquired the black pectoral livery of summer, the others as yet showing no appearance of any change of plumage.

Wood Pigeon.—During the severe weather of January, hundreds of these birds daily frequented the turnip-fields, feeding on the green tops

of the swedes and common turnips; they appear, however, to give a decided preference to the latter plant. In two contiguous fields in this parish, the one swedes, the other the common white-globe turnip, they invariably congregated in much greater numbers on the white turnips, to the comparative neglect of the swedes. They also drilled holes with their bills into the bulbs of the swedes, which is surprising, considering the turnips are frozen as hard as stones: they thus often do considerable damage to the root. As a *general rule*, however, I found that the outer skin of these swedes, thus operated upon, was more or less previously injured, either by the bites of hares or rabbits, or the punctures of some insect. I only found a single instance of grain in the crop of wood pigeons during the severe weather, and in this case the bird had swallowed entire some half heads of wheat, evidently taken from some stack side.

Wild Ducks.—Every species of wild duck has been extremely scarce during the winter in the Humber district. The return of wild fowl killed by a gunner from a "canoe" on this coast is remarkably small, not more than half a dozen widgeons. An old wild-fowl shooter told me the other day that he never knew wild-fowl plentiful on the Humber, no matter how severe the weather, after Christmas, unless there had been some severe weather, frost and snow, earlier in the season, to drive the ducks into the Humber. If they came in before Christmas they remained the winter, if not they never came in at all. The only ducks I have shot on our streams this season have been a few mallards. They were in extremely fine condition, one in particular weighing three pounds within an ounce.

Snow Bunting, &c.—The severity of the frost, as well as the great depth of the snow, in this district, totally excluded our smaller birds from obtaining their living in the open country. Large flocks of various species were driven to seek shelter and food in the fold and stack-yards, eagerly contending for any stray grains of corn under the rick sides. I have thus seen, at the same time, twites, linnets, chaffinches, greenfinches, blackheaded buntings, corn buntings, yellow-hammers, hedge sparrows, thrushes, blackbirds and starlings, all actively foraging; occasionally a flock of snow buntings would join them: these latter birds, however, were in no way inconvenienced by the severity of the season, keeping the open country and thriving when any other bird would have inevitably starved to death. Their favourite haunt was on those grass-lands, where patches of rough grass rose above the snow. It is astonishing with what ease and rapidity

they run over the fresh-fallen snow, their broad strong feet and long hind claw are admirably adapted for carrying them easily over a yielding surface. Some which I shot for examination during the severe weather were very fat; their muscular stomachs full of the seeds of various grasses, and several small angular stones.

Dunlin.—Have already seen indications of a change in the plumage of these birds; one shot to-day (February 9th) had partly acquired the rich brown-black and reddish orange feathers on the shoulders, characteristic of the summer plumage.

Gulls.—Thousands of gulls, namely herring, browheaded and common, with an occasional lesser blackbacked, have for some weeks resorted to the partly submerged meadow-lands, feeding on the drowned worms and slugs: even the solitary and exclusive great blackbacked gull has condescended to come inland and feed in the society of his smaller congeners. It is very rarely that the lesser blackbacked gull remains with us during the winter.

Stonechat.—These little birds have been quite of common occurrence in this parish during the winter. They are much more frequent in this locality than formerly.

Pied Wagtail.—Some few of these wagtails usually remain with us throughout the whole of the winter (Zoologist 9598, 9710, and S. S. 131). I frequently observed one or two of these little birds about the sheep-folds in my turnip-fields up to the end of December. The unusually severe weather early in this year has either killed or driven them away, for I have not noticed any since this time.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire.

Erratum.—There is an error in the 'Zoologist,' S. S. 591, line 17; for "southward" read "northward."—J. C.

List of Birds noticed in East Finmark, with a few short Remarks respecting some of them. By CH. SOMMERFELDT, Parish Priest of Næsseby. Translated and communicated by H. E. DRESSER, Esq.

ALTHOUGH various notes on the birds occurring in Finmark have been published, still a list of those occurring in East Finmark, with a few short remarks on some of them, may not be altogether uninteresting, as the larger portion of the notes taken are confined to observations

made on journeys through the country, and can therefore not be complete. The author of this, who as pastor of Næsseby, on the Varanger Fjord, during nine years, has had a fair opportunity of gaining information both in Næsseby parish district, to which Polmak and Tana belong, and also on journeys in East Finmark, considers himself on these grounds capable of giving a more complete list, the more so, as he has received much interesting information from Mr. Nardvi, a merchant at Martensnæs, who takes great interest in the study of Natural History, and from the Englishman, Mr. John Wolley.

In this list, therefore, no bird will be included with a number, unless it has most certainly occurred. The list may probably at some future time be increased by some few waders and song birds, as some portions of East Finmark, *viz.*, South Varanger and the upper portion of the Tana River, have been but little explored, and Karasjok is not included in East Finmark, which only consists of what lays to the eastward of Sværholt. Possibly various southern and eastern birds may occur in South Varanger, *viz.* *Corythus enucleator*, *Emberiza rustica* and *pusilla*, *Anas fuligula*, and possibly on the Tana River some of the rarer birds found at Muoniouska, *viz.* *Tringa platyrhyncha*, &c.

Before commencing the list, I may be permitted to give a slight sketch of the nature of the country and the climate.

East Finmark's shores are washed by the North Arctic Ocean, which penetrates deep into the country in many fjords, of which the largest are the Laxe Fjord and Tana Fjord from the north, and Varanger Fjord from the east. The northern portion of East Finmark is actually two peninsulas, the one north of Hops and Eids Fjords, the most northern point of which is Nordkyn, the other Varangernæsset (Varanger peninsula), bounded by Tana Fjord, Tana River and Varanger Fjord; on the eastern point of which Vardö lays. These peninsulas, and a portion of the mainland adjoining Hops and Eids Fjords, consist of rather high, flat fells, with higher portions in places and having large tracts covered with rubble and stones, without the slightest sign of vegetation—not even lichens—still one finds here on the masses of snow that remain almost all through the summer the so called "røde sne" (red snow).

On these fell-plains are found large masses, partly flat and even, partly filled with larger and smaller tussocks (Tuer) of peat, generally with black mud between. The fell-plains are intersected by many rivers, along the banks of which we find low down birch and juniper

bushes, when it is not cut away for fuel, but further up in the valley is a far richer vegetation of the alpine Flora than one could expect. The rivers spring either from the fell-lakes, of which there are many, some rather large, as Jerisjauri and Nastejauri, or else from mosses or springs. In most of the lakes are found fishes, Crustacea and larvæ, chiefly of gnats, so that both waders and water-fowl find food there.

This, the dreariest and wildest portion of East Finmark, offers in the interior nesting places for *Charadrius morinellus*, *Emberiza nivalis*, *Saxicola*, skuas, *Strix nyctea*, *Falco gyrfalco*, *Tringa maritima*, probably *Limosa* and some ducks. In the, in many places, inaccessible fells, near the sea the *Lari*, *Carbones*, *Uria* and *Alca torda* breed, whilst *Charadrius hiaticula*, *Hæmatopus ostralegus*, *Sterna arctica*, *Tringa Temminckii* and pipits frequent the sea-shores and the adjacent herbage. Somewhat further up the thrushes, *Alauda alpestris*, *Falco lithofalco*, *Totanus calidris* and *glareola*, *Tringa alpina* and some ducks breed.

In the southern part there are certainly fells, but not nearly so dreary and unfruitful. Lichens and grass are generally found everywhere, whilst birch and juniper grow not only alongside of the rivers, but in every dale and in the fell-mosses, besides which the valleys are much pleasanter and more fertile. The most fertile and mildest portions are some few valleys and fjords in South Varanger and the Tana Valley. South Varanger, the portion of East Finmark lying on the south side of the Varanger Fjord, has not unimportant pine forests, some spruce trees (*Abies orientalis*), fine rich forests of birch, alder and juniper, the rest of the vegetation also shows that there is a milder climate; indeed, of late, some grain is said to have been raised there. The remainder consists chiefly of dry heather hills and mosses. South Varanger has, however, been very little explored for Natural History purposes.

The Tana River flows a distance of about twenty-six Norwegian miles, from S.W. to N.E., to Polmak, from whence, after flowing six miles, broad, and in flood time like a mighty torrent, it empties itself in the Tana Fjord. In the upper part it is surrounded by rolling ground covered with verdure, on which evergreens and deciduous trees grow together. Further down, on the Norwegian side, the pine forests cease, and the forests consist of birch trees, alders, ash, mountain ash and bird cherry. Still further down it is closed in by high, steep cliffs, in places half covered with trees, and generally one can find throughout the year large quantities of snow remaining in the higher portions, from

which foaming mountain-torrents rush down. From both sides many large rivers empty themselves in the Tana, and increase its volume of water. Both the broad valley chain and the neighbouring valleys are covered with thick birch-woods, mixed with alder and mountain ash, and in many places impenetrable juniper-thickets. Of all the valleys adjoining the Tana that cutting from Polmak north up to the Polmak Lake is the mildest and richest in a Natural History respect, the serpentine river flowing peacefully through the high wood-clad hills. The lowlands in the chain of valleys, which are overflowed in the spring but dried up in the summer, so that mosses covered with high grass and bushes remain, the high sand-hills, the rank, high birch woods, mixed with thick under brush, the solitude and quiet, so seldom broken by the visits of human beings, the Polmak Lake, surrounded by large meadows, green and covered with flowers and trees, and the pine forests in the far distance to the southward, naturally make this a resting-place for birds. Thus many of the rarer birds of East Finmark are found here, *viz.* *Muscicapa atricapilla* and *grisola*, *Pyrrhula vulgaris* and *erythrina*, *Totanus glottis*, *Cygnus musicus*, *Anas marila*, *Falco gyrfalco*, *Garrulus infaustus*, *Picus tridactylus*, &c., whilst thrushes, finches, warblers and *Totanus hypoleucos* breed in numbers. With respect to the climate, one might often be tempted to say, as in 1856 and 1857, that East Finmark has eight months winter and four months not summer, but the state of affairs is not always so bad. The winter generally sets in early in October, and is stormy. What is peculiar in the winter here is the sudden change from mild weather to frost, thus within twelve hours the thermometer can fall from freezing point to 24° Réaumur and *vice versa*, but the usual winter temperature here is 15° and 20° R. An even cold spell of 20° is seldom of longer duration than a week, and then is generally changed by northerly storms. We have had it here at Varanger Fjord down to 32° R.

The spring generally commences late in April or in May, but sometimes the snow remains undisturbed until the 8th or 12th of May; but when the south wind comes with rain or sunshine it disappears so suddenly that one scarcely knows how it goes. The birds of passage arrive therefore in May, generally about the middle of the month; but *Emberiza nivalis* and *Anthus rupestris* sometimes arrive in April. At first the birds often undergo great privations during the cold weather, accompanied by snow, that we have almost every year when the rivers are free from ice. They then collect in flocks about the houses, where, amongst the refuse and on the roofs, they seek a miserable subsistence.

Generally a more steady summer warmth sets in late in June, but the song birds lay their eggs about the middle, and *Alauda alpestris* and the thrushes about the commencement of the month, still sometimes not before July.

The heat can be oppressive in the summer, and in Vardö is as high as 24° R. ; but during the steady summer weather a fresh wind blows up the fjords from ten to five o'clock, and during the night blows down the fjords. The colder weather sets in late in August, and the nights are often frosty between the 4th and 11th of August. The above has reference to the country between the Varanger and Tana Fjords, where at Nyberg I have, during several yaars, made careful observations on the temperature and changes of weather.

In good summers when the spring sets in early, *Garrulus infaustus*, *Alauda alpestris* and *Fringilla linaria* lay two lots of eggs, the two latter laying the first in May and second in July. It is certainly difficult to determine whether the same bird really lays twice, but the space of time between makes it not impossible. Taking into consideration the position of East Finmark one would be justified in expecting a rather rich ornithological Fauna ; however, it is limited to 140 of the 325 species found in Scandinavia, *viz.* fourteen *Accipitres*, forty-four *Passeres*, three *Gallinæ*, twenty-six *Grallæ* and fifty-one *Anseres*. But what is wanting in variety of species is to a large extent replaced by the number of individuals in some species. Thus, *Corvus corax* (in the autumn), *Alauda alpestris*, *Emberiza nivalis*, *Fringilla linaria*, *Tetrao alpina* and *subalpina*, *Charadrius apricarius*, *Tringæ*, *Machetes pugnax*, *Lari*, *Anas glacialis*, *Stelleri* and *mollissima*, *Uriæ* and *Carbones* are often found in large flocks ; and others, such as thrushes, *Motacilla borealis*, pipits, *Sylvia trochilus* and *suecica*, *Fringilla montifringilla*, *Charadrius hiaticula*, *Totanus calidris*, &c., are scattered all over where suitable localities are found. Thus Nature is not so deserted as one could expect, and on the highest fells, where the tranquillity is scarcely interrupted but by the piping notes of *Emberiza nivalis* and the *Saxicolæ*, and the shrill, melancholy cry of the golden plover, one is emphatically reminded of the neighbourhood of the Pole.

It may be of interest and advantage to those naturalists who may visit these regions to know the Finmark (Lapp.)* names of the birds,

* In Norway the Lapps are called "Finner;" thus it might perhaps be as well to call Finmark, Lapland ; but as both names can be used for that part of the country, I have kept to the Norwegian name.—H. E. D.

which I place in a column by themselves: *r* signifies rare; *a*, abundant; * occasionally found; — not found; when in parenthesis they are accidental, and when not numbered are of doubtful occurrence.

Species.	Summer.	Autumn.	Spring and	Winter.	Lapp. Name.
1. <i>Aquila fulva</i> ; see note 1	-	<i>r</i>	-	<i>r</i>	Tschiftscha, Nioammel, Go-
2. <i>Haliaëtus albicilla</i>	-	<i>a</i>	-	<i>a</i>	Goaskem. [askem.
3. <i>Pandion haliaëtus</i> ; see note 2	-	*	-	—	Tschiftscha.
4. <i>Buteo lagopus</i> ; see note 2 <i>b</i>	-	<i>a</i>	-	<i>r</i>	Biekkan; Boaimash.
5. <i>Falco gyrfalco</i> ; see note 3	-	<i>a</i>	-	<i>a</i>	Riefsakfalle.
6. „ <i>peregrinus</i> ; see note 4	-	-	-	<i>r</i>	-
7. „ <i>lithofalco</i> ; see note 5	-	<i>a</i>	-	-	Tsitsaschfalle.
8. <i>Astur palumbarius</i> ; see note 6	-	—	-	*	Tschuonjafalle; Njirse.
9. „ <i>nisus</i>	-	<i>r</i>	-	—	-
10. <i>Strix nyctea</i> ; see note 7	-	*	-	*	Skuolfe.
11. „ <i>funerea</i> , <i>Lth.</i>	-	*	-	*	Girjelodde.
12. („ <i>lapponica</i>); see note 8	-	—	—	<i>r</i>	Aapu (i Enare).
13. („ <i>bubo</i>); see note 9	-	—	-	-	Lidno.
14. „ <i>brachyotus</i> ; see note 10	-	?	-	<i>r</i>	Igjalodde.
15. <i>Cuculus canorus</i> ; see note 10 <i>b</i>	-	*	-	—	Giekka.
16. <i>Picus major</i>	-	*	-	*	Tsitsasch-tschaitne.
17. „ <i>tridactylus</i>	-	*	-	*	Tschaitne.
(<i>Upupa epops</i>); see note 11					
18. (<i>Sturnus vulgaris</i>); see note 12					
19. <i>Corvus corax</i>	-	<i>a</i>	-	<i>a</i>	Garanas; Buldogas.
20. „ <i>cornix</i>	-	<i>a</i>	-	<i>a</i>	Vuortsches.
21. „ <i>pica</i> ; see note 13	-	<i>r</i>	-	<i>r</i>	Ruoschschagaranas.
22. <i>Garrulus infaustus</i> ; see note 14	-	<i>a</i>	-	<i>a</i>	Gnofsak.
23. (<i>Bombycilla garrula</i>); see note 15	—	-	-	—	Bæljerastach.
24. <i>Hirundo rustica</i> ; see note 16	-	<i>r</i>	-	—	-
25. „ <i>urbica</i> ; see note 16	-	*	-	—	-
26. „ <i>riparia</i> ; see note 17	-	*	-	—	Spalfo.
27. <i>Muscicapa grisola</i> ; see note 18	-	<i>r</i>	-	—	-
28. „ <i>atricapilla</i> ; see note 19	-	<i>r</i>	-	—	-
29. <i>Lanius excubitor</i>	-	*	-	—	Utseb ruoscha-garanas.
30. <i>Turdus pilaris</i>	-	<i>a</i>	-	—	Soakkerastes; Bafterastes.
31. „ <i>iliacus</i>	-	<i>a</i>	<i>a</i>	—	Miestag rastes.
32. „ <i>torquatus</i>	-	*	-	—	-
33. <i>Cinclus aquaticus</i> ; see note 20	-	*	-	*	Guoikgarek.
34. <i>Motacilla alba</i>	-	<i>a</i>	-	—	Bæschtor.
35. „ <i>flava</i>	-	*	-	—	Fiskis tsitsasch.
36. „ „ <i>borealis</i> ; see note 21	-	<i>a</i>	-	—	<i>Id.</i>
37. <i>Anthus rupestris</i> ; see note 22	-	<i>a</i>	<i>a</i>	—	-

Species.	Summer.	Autumn.	Spring and	Winter.	Lapp. Name.
38. <i>Anthus pratensis</i> - - -	<i>a</i>	-	-	—	Duolva tsitsasch.
39. „ <i>cervinus</i> , <i>Pall.</i> ; see note 23	<i>a</i>	-	-	—	Siedga bæschtor.
40. <i>Saxicola œnanthe</i> - - -	<i>a</i>	-	-	—	Gædgerastasch.
41. <i>Sylvia trochilus</i> ; see note 24	-	<i>a</i>	-	-	Riefsaktsitsasch.
(„ <i>sibilatrix</i>); see note 25					
(„ <i>schænobænus</i>); see note 26					
42. „ <i>suecica</i> - - -	<i>a</i>	-	-	—	Gjelavælgø.
43. „ <i>phœnicurus</i> - - -	<i>r</i>	-	-	—	
(<i>Accentor modularis</i>); see note 27					
44. <i>Parus sibiricus</i> ; see note 28	-	*	-	*	Gatsip.
45. <i>Alauda arvensis</i> ; see note 29	-	<i>r</i>	-	—	
46. „ <i>alpestris</i> ; see note 30	-	<i>a</i>	<i>a</i>	-	Ruoscha alap.
47. <i>Emberiza citrinella</i> ; see note 31	<i>r</i>	-	-	—	
48. „ <i>schœniclus</i> - - -	<i>r</i>	-	-	—	Tschatse divek.
(„ <i>rustica</i>); see note 32					
(„ <i>pusilla</i>); see note 32					
49. „ <i>nivalis</i> - - -	<i>a</i>	<i>a</i>	<i>a</i>	*	Alap; Halap.
50. „ <i>lapponica</i> ; see note 33	<i>a</i>	-	-	—	Tschappis vuovlasch.
51. (<i>Fringilla domestica</i>); see note 34	—	<i>r</i>	<i>r</i>	—	
52. „ <i>montana</i> ; see note 34	-	<i>r</i>	-	—	
53. „ <i>montifringilla</i> - - -	<i>a</i>	-	-	—	Vintan.
54. „ <i>linaria</i> ; see note 35	-	<i>a</i>	-	<i>a</i>	Omoltsitsasch.
55. „ <i>canescens</i> ; see note 36	-	-	<i>r</i>	-	
56. <i>Pyrrhula vulgaris</i> - - -	<i>r</i>	-	-	—	
57. („ <i>erythrina</i>); see note 37					
58. (<i>Loxia curvirostra</i>); see note 38	-	-	-	<i>r</i>	Batsaklodde.
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59. <i>Columba turtur</i> ; see note 39	-	-	-	<i>r</i>	-
60. <i>Tetrao urogallus</i> ; see note 40	-	*	-	-	*
61. <i>Lagopus alpina</i> - - -	-	<i>a</i>	-	-	<i>a</i>
62. „ <i>subalpina</i> - - -	-	<i>a</i>	-	-	<i>a</i>
<hr/>					
63. <i>Charadrius apricarius</i> - - -	-	<i>a</i>	<i>a</i>	<i>a</i>	—
64. „ <i>morinellus</i> - - -	-	<i>a</i>	<i>a</i>	<i>a</i>	—
65. „ <i>hiaticula</i> - - -	-	<i>a</i>	-	-	—
(„ <i>helveticus</i>); see note 41					
66. <i>Strepsilas collaris</i> - - -	-	*	-	-	—
67. <i>Hæmatopus ostralegus</i> - - -	-	<i>a</i>	<i>a</i>	<i>a</i>	—
68. (<i>Grus cinerea</i>); see note 42					
69. <i>Numenius arquata</i> - - -	-	*	-	-	—
70. „ <i>phæopus</i> - - -	-	*	-	-	—
71. <i>Tringa islandica</i> ; see note 43	-	<i>r</i>	-	-	—
72. „ <i>minuta</i> ; see note 44	-	-	<i>r</i>	<i>r</i>	—
73. „ <i>Temminckii</i> - - -	-	<i>a</i>	-	-	—

Gusch kastak.

Id.

Vizardalle.

Species.	Summer.	Autumn.	Spring and	Winter.	Lapp. Name.
74. <i>Tringa maritima</i> ; see note 45	- a	-	a	*	Tsivlasch; Gaddebirrusch.
75. „ <i>alpina</i> ; see note 46	- a	-	-	-	Tschappis tschoavje.
(„ <i>Schinzii</i>); see note 47					
(„ <i>platyrhyncha</i>); see note 48					
(„ <i>subarquata</i>); see note 48					
(<i>Calidris arenaria</i>); see note 49					
76. <i>Machetes pugnax</i> ; see note 50	a	-	-	-	Ravgusch.
77. <i>Totanus hypoleucus</i> - - -	- a	-	-	-	Gaddebirrusch.
78. „ <i>fuscus</i> ; see note 51	- r	-	-	-	Tschappis tschoavtscho.
79. „ <i>calidris</i> - - -	- a	a	a	-	Tschoavtscho.
80. „ <i>glareola</i> - - -	- a	-	-	-	Utseb tschoavtscho.
81. „ <i>glottis</i> - - -	- *	-	-	-	Vikla „
82. <i>Limosa rufa</i> ; see note 52	- -	- *	- *	-	
83. „ <i>melanura</i> ; see note 52	- -	- r	- r	-	
84. <i>Scolopax gallinago</i> - - -	- a	-	-	-	Makkastak.
85. „ <i>gallinula</i> ; see note 53	- r	-	-	-	
86. <i>Phalaropus angustirostris</i> - -	- a	-	-	-	Tschatsebavgus; Srapalas.
87. „ <i>rufus</i> ; see note 54	- -	-	- *	-	
88. (<i>Fulica atra</i>); see note 55	- ?	-	- r	-	
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89. <i>Procellaria glacialis</i> ; see note 56	* -	* -	* -	-	Bubmalasch.
90. <i>Sterna arctica</i> - - -	- a	-	-	-	Tscherrek.
91. <i>Larus eburneus</i> ; see note 57	- -	-	- r	- r	Ave riefsak.
92. „ <i>tridactylus</i> ; see note 58	- a	-	-	-	Skirpo.
93. „ <i>canus</i> ; see note 59 -	- a	-	-	- a	Baiske.
94. „ <i>argentatus</i> ; see note 60	- a	-	-	- a	Stuorraladde.
95. „ <i>leucopterus</i> ; see note 61	- -	-	-	- *	Id.
96. „ <i>glaucus</i> ; see note 62	- a	-	-	- a	Id.
97. „ <i>marinus</i> ; see note 63	- a	-	-	- a	Geja.
98. „ <i>fuscus</i> ; see note 64	- a	-	-	- a	
99. (<i>Lestris catarrhactes</i>); see note 65					
100. „ <i>pomarina</i> ; see note 66	- *	-	-	-	Ave haskil.
101. „ <i>parasitica</i> ; see note 67	- a	-	-	-	
102. „ <i>crepidata</i> ; see note 68	- a	-	-	-	Haskil.
103. <i>Cygnus musicus</i> - - -	- *	-	-	-	Nuftscha.
104. <i>Anser albifrons</i> - - -	- r	-	-	-	
105. „ <i>minutus</i> ; see note 69	- *	-	-	-	Galbenjudne tschuouja.
106. „ <i>Segetum</i> ; see note 70	- *	-	-	-	Tschuouja.
107. „ <i>arvensis</i> ; see note 70	- *	-	-	-	Id.
108. „ <i>cinereus</i> ; see note 70	- -	- *	-	-	
109. „ <i>torquatus</i> ; see note 71	- -	- a	- a	-	
110. („ <i>leucopsis</i>); see note 72	- -	-	- r	-	
111. (<i>Anas tadorna</i>); see note 73	- -	-	- r	-	
112. „ <i>acuta</i> - - -	- a	-	-	-	Vuoujasch.

Spécies.		Summer.	Autumn.	Spring and	Winter.	Lapp. Name.
113.	Anas crecca - - - -	a	-	-	-	Schiksa.
114.	„ boschas - - - -	r	-	-	-	Dörsa.
115.	„ Penelope; see note 74	a	-	-	-	Snartal.
(„ fuligula); see note 75	-	-	-	-	Utsa fjeltakasch (Enare).
116.	„ marila; see note 76	*	-	-	-	Fjeltak.
(„ leucophthalmos); see note 77	-	-	-	-	
117.	„ nigra - - - -	*	-	-	-	Njurgo.
118.	„ fusca - - - -	a	-	-	-	Skoorra.
119.	„ clangula; see note 78	a	-	-	-	Tschoadge.
120. („ Barrovii) - - - -	-	-	r	-	
121.	„ glacialis; see note 79	a	-	-	*	Hanga.
122.	„ Stelleri; see note 80	*	-	-	a	Sarje havda.
123.	„ mollissima; see note 81	a	-	-	*	Havda; ♂, Likka.
124.	„ spectabilis; see note 82	-	-	-	*	Burs-njunhavda; Sult-njun-
125.	Mergus merganser - - -	*	-	-	-	Gussagoalse. [havda.
126.	„ serrator; see note 87	a	-	-	*	Vuofagoalse.
127.	Graculus carbo; see note 83	a	-	-	a	Skarfa.
128.	„ cristatus; see note 83	a	-	-	a	
129.	Colymbus glacialis - - -	-	-	*	-	Ave dofta.
130.	„ arcticus; see note 84	a	-	-	*	Dofta.
131.	„ septentrionalis - - -	a	-	-	-	Gakkur.
132.	(Podiceps arcticus); see note 85	-	-	r	-	Njunnalak.
133.	Uria troile; see note 86	a	-	-	*	
134.	„ ringvia - - - -	a	-	-	*	
135.	„ Brunnichii - - - -	a	-	-	a	
136.	„ grylle - - - -	a	-	-	*	Tschielkas.
137.	Mergulus alle - - - -	-	-	*	*	Tsillasch.
138.	Mormon arcticus - - - -	a	-	-	*	Boftasch.
139.	Alca torda - - - -	a	-	-	*	Halca.
140. („ impennis); see note 88	-	-	-	-	

(To be continued.)

Greenland Seal near Ryde.—On the 15th of February a seal having been shot on the rocky shore at Seaview, near Ryde, its capture was announced in the local papers as that of a “sea monster, with teeth like a crocodile’s, nose like a dog’s, and having a tail like a goat’s! Its length four feet three inches; weight one cwt.” It was said to be the gray seal; and this went the round of the papers. Having forwarded a drawing of the tusks of the different species to Mr. Smith, taxidermist, of Newport, by whom it is being prepared for the Museum, it turns out to be the Greenland seal. From its being designated a “sea monster,” it might be imagined that a seal had never been seen on our coast before; but I have heard of more than one

instance of its occurrence. Last year one was seen off Shanklin.—*Henry Hadfield; High Cliff, Ventnor, Isle of Wight, March 12, 1867.*

Death of the Sea Bear.—At the meeting of the Zoological Society of London, held on Thursday last, Dr. Murie described the cause of the death of the Otaria, or sea bear, the remarkable animal that proved so great an attraction to the visitors to the Gardens during the last summer. Our readers may remember that an account of this docile and intelligent creature, with an engraving after an exquisite drawing by Wolf, appeared in the 'Field' of March 10, 1866, and the engraving has been reproduced in the 'Rural Almanac' for the present year. On the 10th of February last the animal appeared dull and showed less than its usual activity and grace in the water: on the following day it was seriously ill, and had altogether lost its appetite. On the 12th the symptoms were increased; the body became cold, there was tenderness on pressure, and every symptom of dangerous internal inflammatory action. On the 14th the animal passed a fragment of coarse canvas, tightly compressed by the action of the intestines into a cord-like form, some four or five inches in length, and between one and two in diameter; inclosed in the folds was a fish-hook. The passage of these foreign bodies gave every reason to hope for a favourable termination to the case; but unfortunately the irritation produced by their presence in the digestive canal was too great, and the animal died early on the morning of the 15th. The post-mortem examination showed that death resulted from congestion of the alimentary canal and liver, evidently caused by the passage of the substances above-mentioned.—*W. G. Tegetmeier, in the 'Field' of March 9, 1867.*

Notes on the Mammalia of Buckinghamshire and Berkshire (continued from Zool. S. S. 631).—

Otter.—Otters are occasionally seen, and I believe taken, in the neighbourhood of Windsor, and the remains of fishes partly eaten by these animals are found on the banks of the Thames. Mr. Thomas Lloyd, of Eton, observed one in the rushes by the river, near Surley Hall, at the beginning of last September, and I believe several have been seen this winter near here.

Field Mouse.—A variety (?) of the field mouse was caught, by a dog, in the private grounds of Windsor Castle, last November. I took it from the mouth of the dog about a minute after it had caught it, and was surprised to see that it had no tail: it had certainly not been eaten off by the dog. Its ears were covered with long fur, and were very large, while its head appeared to be much swollen and larger than usual. The eyes were set close to the snout, and its whole appearance was very peculiar. I took it to several naturalists in London, and it was pronounced by all to be a variety of the field mouse. It was found close to the water, late in the day.

Common Water Rat.—On the 29th of January last I saw a curious variety of the water rat: it was swimming across a stream near Eton: its tail was quite white, and the rest of its body of the usual colour. It had something in its mouth that looked like a bit of straw, but whether it was or not I cannot say.

Polecat.—These animals are still fairly common near Windsor, notwithstanding the continued war which is waged against them by the gamekeepers.

Shrew Mice.—These little animals are exceedingly numerous near Surley and Eton; but from a field which borders on the banks of the Thames (in which great numbers of shrews lived) being under water during the late floods, great numbers perished.

Common Mole.—One of the animal-preservers here told me that he had brought to him, the summer before last, a cream-coloured variety of the mole. He says that its eyes were pinkish in colour, and that it was a very pretty specimen.—*A. Clark-Kennedy, February 12, 1867.*

Perfect Mastodon Skeleton.—One of the largest and most perfect mastodons known has recently been discovered in digging the foundation for a mill at Cohoes, near Troy, in the United States. It was found eighty-three feet below the surface of the ground, and in so perfect a condition that it is believed that the skeleton can be restored entire. The animal must have been at least twenty feet in length and fifteen in height. The tusks measure eight feet, and the jaw is four feet nine inches in length from the mouth to the cranium. The remains have been carefully collected, and it is stated that Prof. Agassiz will draw up a report on them.

Nesting of the Peregrine Falcon.—In your ‘Birdsnesting’ you say, at p. 6, as to the situation of the peregrine’s nest, “Sea cliffs all round our coast.” This is quite correct so far as it goes, but curiously enough, in the only instances in which I have procured the eggs myself, the nests have been built in mountain cliffs far from the sea. In 1857 I took a peregrine’s nest with three eggs, in the middle of May, from a mountain craig, some three miles from Gargunnoch, in Stirlingshire. The old birds having been killed by a keeper on the 27th of April, and brought to a birdstuffer in Stirling, induced me to seek for their nest. I understand that since then another pair of peregrines have occupied the same breeding-place. In Aloan Craig, just above the village of Aloan, in Clackmannan, a pair of peregrines nest nearly every year, although frequently robbed.—*W. H. Feilden; Feniscowles Hall, Blackburn, Lancashire, March 5, 1867.* [Such criticisms as this are always acceptable: it is very agreeable when omissions call forth additional information.—*E. N.*]

Orangelegged Hobby near Aberdeen.—A female of this species was shot near Rothiemay about four years ago, and preserved by Mr. Mitchell, and a male was shot in the month of July last year, within six miles of Aberdeen, while in the act of stealing the last of a brood of chickens. The reason why this species has not been oftener observed is, doubtless, owing to its being confounded with other species which it resembles.—*Aberdeen Free Press.*

Kestrels breeding in Confinement.—In one of your late impressions a correspondent wished to know if the sparrowhawk ever bred in confinement. Now I cannot recall an instance of that species having done so, but can relate an interesting case concerning the kestrel, which came under my own notice only last summer. On calling at the shop of Mr. Rogers, naturalist, Plymouth, I was asked into the aviary, containing live birds of many kinds, and on observing a female kestrel crouched in the corner of a cage not five feet long by about three feet high, and not two feet broad (with her feathers ruffled and her wings partially spread, as if pluming her prey), asked what it meant, and was told she had been sitting on five eggs, had just hatched one young one, and that the male, which was on a perch close by, had regularly taken his turn on the nest. Of course, feeling interested, I called again in about a week, and found that the whole five had been hatched, one on every alternate day; but, strange to say, directly after the second chick was produced, she killed and ate the first, and after the third she ate the second, and so on to the fourth, allowing each to live one

day, when Mr. Rogers, wishing to save at least one young bird, took away the fifth, hoping to rear it by hand, but it lived only a day or so. The old birds are now alive, apparently very happy and in good health. Whilst writing on rearing young birds by hand, I may mention a remarkable instance which occurred at Plymouth a year or two ago. A friend of mine found a gull's nest on some cliffs in the neighbourhood, and, seeing the bill of a young one just appearing through a hole in an egg, he broke it, released the young bird, wrapped it up carefully, brought it home, fed and kept it until it became full grown, when he sent it away as a present to a friend.—*John Gatcombe; Plymouth.—From the 'Field' newspaper.*

Goshawk in Ireland.—Since my last communication on this subject (S. S. 632) I have found the following passage in a scarce work on hawking entitled 'A Treatise of Modern Faulconry,' by James Campbell, which was published in Dublin in 1780:—"The goshawk is found in the north of both Scotland and Ireland, where she builds her nest in a tree" (p. 214).—*J. Edmund Harting; Kingsbury, Middlesex, February, 1867.*

The Lesser Gray Shrike (Lanius minor) a British Bird.—On referring to the 'Zoologist' for the year 1851, you may observe a notice of the occurrence of a female specimen of *L. excubitor* having been sent from St. Mary's, one of the Scilly Isles, in the first week of November: this specimen, which stands in my case of shrikes with another and larger gray shrike, which is the *L. excubitor*, an adult male bird, is so much smaller that I had for a long time regarded it as the adult female of *L. excubitor*; subsequent observations, however, of this small Scilly bird caused some doubts in my mind as to its identity with the great gray shrike, and my friend the Rev. John Jenkinson, in a late visit, entered upon the subject, which led to an able and valuable description of my two birds and one of his own, and I can only refer your readers at present to the notice which appeared in the 'Zoologist' (S. S. 605) since. On meeting Mr. Gould in the county some time since, I mentioned to him my conviction that my small bird specifically differed from the great shrike, from the shorter and more conical shape of the bill, its much shorter tail, and the distribution of white in the feathers of the tail being different from the larger bird: the blotch of black behind the eye was much broader and not approaching to the character of a streak, and the upper plumage was entirely plain dull gray, without a vestige of white on the scapularies. Mr. Gould asked me to send the two birds for his inspection, which I did, and he writes me word that my small bird is *Lanius minor*, the first instance of its occurrence in the British isles, so far as he knew. It will be right to state that this specimen has not the *black band in front* on the forehead, as represented in the 'Birds of Europe' and Dr. Bree's work on European birds; but as Temminck says that the young birds are without this band my specimen may be a young bird with plumage much worn.—*Edward Hearle Rodd; Penzance, March 5, 1867.*

Eggs of Ring Ouzel and Blackbird.—You seem to think ('Birdsnesting,' p. 11) that the eggs of ring ouzels and blackbirds are so nearly alike as scarcely to be distinguished: my own opinion is that there is a specific difference between them; but as there will be several pairs breeding with us this year, I will collect their eggs myself and leave you to judge whether there is not a marked difference between the two species.—*H. W. Feilden.*

Black Redstart at Dawlish.—I saw this morning, in a shrubbery at Dawlish, a female specimen of the black redstart. The shrub on which the bird was perched was

within a gun-shot of the beach, and a rather strong east wind was blowing at the time.—*J. H. Gurney.*

Savi's Warbler (?), *Plover* and *Lesser Spotted Woodpecker in Bucks.*—Last June, in the neighbourhood of Eton, I saw a bird which I am pretty sure was Savi's warbler: it was in a low hedge which I am in the habit of passing nearly every morning, and the favourite resort of sedge warblers, close to the River Thames: having heard a harsh note, like that of the sedge warbler, I looked for the bird, and got a fair sight of it for a moment while sitting on the top of the hedge, when I discovered it was no common warbler, but a bird with a reddish brown back, with (I think) a black line across the wings: the cheeks and breast were grayish white; I thought it would prove to be Savi's warbler, but I had no idea how closely Morris's plate would describe my bird. Mr. Clark-Kennedy, in his notes from Bucks, might have added that between October and March flocks of plovers continually pass over Eton—probably lapwings and golden plovers. About four Sundays ago I observed a lesser spotted woodpecker on an elm close to my window, but the sparrows soon drove it away. These same sparrows are provokingly exclusive: chaffinches and titmice meet with the same rough treatment at their hands.—*Clifton; Eton, Bucks.*

Bohemian Waxwing in Wiltshire.—The last week in November, 1866, a very nice specimen of the Bohemian waxwing was killed at West Wellow, Wiltshire: although these beautiful birds, about this time, appear to have been quite numerous in some districts, this is the only specimen, so far as I can ascertain, that has been killed or seen in this neighbourhood. The lad who shot it said it was quite alone, and that he had seen no others before or since.—*Henry Blackmore; Salisbury, March 9, 1867.*

Bohemian Waxwing at Vienna.—A bird, very rare as far south as the Danube, the waxwing, has visited Vienna in large flights during the winter, probably driven from more northerly regions by the unusually heavy falls of snow. This beautiful creature is considered a bird of ill omen by the country people, who call it "pest," or "todtenvogel,"—plague or death bird,—and believe its appearance to forebode pestilence and famine and war.—*From the 'Standard' of March 4, 1867.*

Pied Wagtails in January.—With regard to this subject (Zool. S. S. 634) I noticed that a great many pied wagtails appeared here, in the streets of this town, on the 3rd of January, immediately after the first fall of snow this winter: they seemed to have a great dislike to the snow, and exclusively frequented patches of roadway from which it had been cleared, feeding at refuse-heaps or any unfrozen parts of the gutters. Although not in flocks they were pretty numerous: I several times counted eight or ten single birds just in front of the house, and into whatever street you went at least two or three were seen, so that the number altogether in the town must have been considerable. Three or four regularly frequented our garden in company with robins, chaffinches, hedgesparrows, tits, sparrows, &c., and fed freely on small scraps of fat, &c., thrown out for them. The robins and wagtails were far more pugnacious than any of the other birds, and combats were constantly taking place between individuals of the two species. Immediately upon the break up of the frost the wagtails left the town, and from the 6th to the 12th of January I did not see one: on the latter day, however, snow again fell, and on the 13th there were several wagtails in the streets, where they continued until the return of mild weather, when they again disappeared; since then I have only twice seen a solitary bird in the town, and but very few in the neighbourhood.—*James Shorto, jun.; High East Street, Dorchester, March 11, 1867.*

Does the Yellow Wagtail always Migrate?—One was killed under the frame of my bird-trap in December, 1814, during a slight frost, and a beautiful specimen it was; and I also saw one on the 25th of December, 1866, at Keynsham, Somersetshire.—*Edward West; Saltford, near Bristol.*

Black Sky Lark.—About twenty years ago the writer called on a tailor, named John Yearsley, near Weaverham, in Cheshire, who had a sky lark nearly black, which bird he said “had become so, as almost any other bird would do, by being fed wholly on hemp-seed.”—*Id.*

Wood Lark in Kent.—During the first severe snow here (Cobham) flocks of larks were continually passing over the park. These birds I imagine to have been wood larks. I never could find out that they settled anywhere; all I know is that they were continually passing over my head in a S.W. direction: as they flew over me I noticed that they seemed short compact birds, and that the tail was short—shorter I should say than any sky lark’s tail: the breast appeared to be of a pure white ground-colour, the spots not being visible at such an altitude, while on the throat there was a very thick and distinctly marked cluster of dark red spots. I consulted Mr. Harting’s book as to the distinctions between the two species, and was tolerably satisfied as to my birds being wood larks; but what exactly gave me the idea of them was the figure of the wood lark in ‘Our Native Songsters.’ I should like to know if any other southern ornithologists observed any wood larks last winter.—*Clifton; March 10, 1867.*

Lapland Bunting at Lewisham.—At a meeting of the West Kent Natural History Society, held at Blackheath on the 27th of February, Mr. Price exhibited a very fine living specimen of the Lapland hunting. This very rare straggler was captured, during the late severe weather, in Lewisham brick-fields, near the Lewisham Road. The specimen is a male in the winter plumage, the velvety black beginning to show a little on the head and breast: the bird is very lively, and, though the lark-feet would suggest a different habit, appears to prefer perching to resting on the ground. I am glad to add that the bird is in good hands, and is not likely to be killed for stuffing: it is quite refreshing to record the visit of so rare a bird without giving an account of its slaughter. I may add that it showed its affinity to the buntings by descending when caught to the call of the common bunting.—*J. Jenner Weir; 6, Haddo Villas, Blackheath, February 28, 1867.*

Snow Bunting on Blackheath.—I was fortunate enough to obtain this morning a most beautiful specimen of the male snow bunting: the bird is in the variegated plumage of spring, is very healthy and active, and I trust will form an interesting addition to my aviary.—*Id.*

Siskin at Oatlands.—We have the siskin here just now in very beautiful plumage.—*W. C. Hewitson; March 4, 1867.*

Siskin in Buckinghamshire.—About a fortnight ago I saw in a bird-fancier’s shop in Eton six siskins: he informed me that they had all been caught in the vicinity of Eton, by clap-nets. On the 5th or 6th of March I was again at the shop, when an addition of five or six had been made, having also been caught near Eton. I fancy these birds are not common about here, not having noticed any before. They were all in good plumage, especially the male birds.—*A. Clark-Kennedy; Eton, March 11, 1867.*

Canaries breeding in January.—A man who lives in Windsor told me that he had had some very early canaries this year: he said that the old birds began to form the

nest during the old year (1866), and that four young ones were hatched upon the 18th of January following. They are now doing well, and the female hatched another brood of three on the 24th of February. Surely the first of these broods was very early, even for birds in confinement.—*A. Clark-Kennedy.*

Varieties of Chaffinch's and other British Bird's Eggs.—I have the following varieties in my collection of eggs: a short note on each may prove of interest to the readers of the 'Zoologist':—

Chaffinch.—In the month of May, 1862, while staying at Frittenden, in Kent, I found a chaffinch's nest in a laurel, with three eggs, two of which were of the usual colour, one with very few spots on it, and a fourth had no spots at all or lines of any sort whatever, but was of a deep rich blue, not unlike a hedgesparrow's egg: the colour has greatly faded within the last two years.

Thrush.—I have a pure blue thrush's egg, and several with hardly any spots: neither of these are uncommon.

Blackbird.—I have a blue egg of the blackbird, with rather a tendency to reddish brown at the larger end, and several very deep brown ones.

Robin.—In the summer of 1862 or 1863 I found a nest of the robin on a mossy bank by the side of a public road near Berkhamstead, Herts: in it were four eggs, all quite white, and of a most lovely pink hue before being blown. Is a white egg of the robin common or not?

Guillemot.—I have several curiously marked specimens of the guillemot's egg: some are very lightly marked with brown, while I have others marked as if with ink.

Wood Pigeon.—I have an egg quite round of this bird.

Yellow Bunting.—I have several eggs with various letters marked upon them—on some very plainly.

Goldencrested Wren.—I have an egg quite round of this bird, and several very elongated. The eggs of this species seem to vary considerably.

Redbacked Shrike.—An egg with lilac markings, one with brown spots, and another has deep red marks.

Hawfinch.—I got the eggs of the hawfinch in the summer of 1863 near Berkhamstead, Herts.—*Id.*; February 18, 1867.

Curious Fact connected with the Brambling.—Yesterday evening, at a little past eight o'clock, a bird flew into a room in this house (in Eton), through the open window: I soon saw that it was a brambling. It is not a common bird here, and I believe not very numerous anywhere; but the curious fact is its flying by night straight into a house. I should be inclined to think it had escaped from some cage, as it made no effort to escape. It was placed in a cage, and up to this time is thriving: the bird does not belong to me.—*Id.*; March 11, 1867.

Magpie with a Yellow Beak.—On the 23rd of February Mr. J. G. K. Young and myself drove down to the coast to see if any birds could be procured. On the way down a magpie rose out of some blue-berry bushes about twenty yards from us, and alighted on a tree some distance off. "By Jove! look at his yellow bill!" I said, as he flew off; "I never saw that before." Mr. Young also saw it quite distinctly. I was at first inclined to believe that it was something which it was carrying in its beak, but the yellow was so distinct, and had so formed itself into the exact shape of the bill that I feel almost certain that it really was a yellow bill, and Mr. Young was perfectly positive that it was. I tried to stalk the bird, and got within sixty yards of it, but could

not get nearer. The gun "snapped," and the bird flew off into the woods. Have you ever seen or heard of a magpie with a yellow beak before?—*John A. Harvie Brown; Dunipace House, Falkirk, March 6, 1867.* [Certainly not; and I can offer no opinion in the present instance.—*E. N.*]

Curious Abnormal Growth of Feathers in a Woodpecker's Tail.—I have an adult male specimen of the green woodpecker in my possession, killed in January last in this neighbourhood: its tail contains the usual number of feathers, viz. twelve, all in perfect condition; between the centre ones two curious abnormal shafts issue, raising themselves above the surface of the others, and curving over the right side: they are quite strong and stiff, and from the ends of each several fibres branch off: each shaft measures one inch and seven-eighths in length.—*T. E. Gunn; 3, West Pottergate, Norwich.*

Breeding of the Kingfisher.—I do not find in any book of birds in my possession any reference to the time of year at which the kingfisher begins to breed, and as I have been surprised at its early date I send you the following record. The kingfisher has bred here every year of my residence, and until I had a sand-bank cut in forming an island in the lake for ducks to breed upon, it managed (very uncomfortably, I should think) to breed amongst the roots of an alder. This year it first made its appearance on the 20th of February, when it cleared out its hole, and is now, I have little doubt, sitting upon its eggs. It must I think have three broods in a year. It was here last year for six months, and seemed to be employed the whole time, and daily, passing to and fro. The young birds have very little notion of self-preservation. Out of a brood last year one killed itself against my drawing-room window, and a second flew into a neighbour's house.—*W. C. Hewitson; Outlands, March 4, 1867.*

Toad Stones and Eagle Stones.—Anent the quotation from 'Evangeline' (Zool. S. S. 561) respecting swallow stones, may I be allowed to place the following observations on toad stones and eagle stones from Brand's 'Popular Antiquities.' Pennant, in his 'Zoology,' as quoted by Brand, says, "It (the toad) was believed by some old writers to have a stone in its head, fraught with great virtues, medical and magical. It was distinguished by the name of the reptile, and called the toad-stone, Bufonites, Crapaudine, Krottenstein; but all its fancied powers vanished on the discovery of its being nothing but the fossil tooth of the sea-wolf, or some other flat-toothed fish, not unfrequent in our island, as well as several other countries." The editor of 'Popular Antiquities,' pursuing the subject further, has added two interesting notes from the same author, Pennant:—"These and the other grinding teeth (alluding to the teeth of the wolf-fish) are often found fossil, and in that state called Bufonites, or toad-stones: they were formerly much esteemed for their imaginary virtues, and were set in gold and worn as rings" ('Zoology,' vol. ii. p. 154). "The ancients believed that the pebble commonly called the ætites, or eagle-stone, was found in the eagle's nest, and that the eggs could not be hatched without its assistance" (Ibid., vol. i. p. 167). For further information consult Brand's work.—*George Roberts; Lofthouse, Wakefield, February 16, 1867.* [I think I recollect more than one passage in Shakespeare bearing on this subject; but I leave Mr. Harting, who is so skilled in Shakespearian lore, to investigate this.—*E. Newman.*]

The Willow Grouse and Red Grouse.—After a perusal of what has appeared at various times in the 'Zoologist' upon the supposed specific identity of the willow grouse of Norway and the red grouse of the British islands, I still believe that Temminck was

correct in considering them to be distinct species. If the plumage of the willow grouse had been at any period of the year the same as that of our red grouse there would have been some grounds for supposing them to be identical; but this is not the case. The changes of plumage of the willow grouse are the same as those of the common ptarmigan, the wings and lower parts of the body being pure white at all seasons. The periodical changes of the plumage of the red grouse are very slight, but the colour, I believe, is generally *darker* in winter than it is in summer, when it assumes rather more of an orange tint. The common ptarmigan undergoes the same changes of plumage in this country as it does in Norway and Sweden, and it is very remarkable that no such change should ever take place in the plumage of our red grouse if it is identical with the willow grouse. Temminck states that the red grouse has only sixteen feathers in the tail, while the willow grouse and common ptarmigan invariably have eighteen, but I cannot verify this assertion, as I have not a skin of either of the species now in my possession. Mr. Cooke, of Oxford Street, told me a short time since that he possessed authentic eggs of the willow grouse, and they were certainly different from any of the varieties of those of the red grouse.—*Henry Doubleday; Epping, February 6, 1867.*

Bitterns near Dorchester.—Although the bittern is now only a rare visitor with us, several have this winter been obtained in the neighbourhood. I saw lately in the hands of a bird-suffer two male birds, in very fine plumage, both shot at the beginning of the year, and another was taken alive at West Stafford, about two miles from here, during the third week in January. This bird was found by some wild-fowl shooters in a withy bed, standing over a jack, which it had killed, but not commenced eating: when it was flushed the jack was left behind, and a trap was set by the fish, in expectation of the bittern's return, which proved to be the case, and the bird was taken uninjured, although not secured without some difficulty. Having been carefully fed for some days on fish, &c., it seemed likely to do well in confinement, and it has I believe been sent to the Zoological Gardens, Regent's Park.—*James Shorto, jun.; High East Street, Dorchester, March 11, 1867.*

Redshank in Breeding Plumage in January.—Among several redshanks received, in the flesh, from the neighbourhood of Southend, during the severe weather in January last, I noticed one that, to all appearance, was in complete summer plumage. On comparing it with several skins and stuffed specimens in my collection, all in summer dress, I found that it scarcely differed from them in plumage, the only variation being that the spots on the fore part of the neck and breast were a little less conspicuous in the bird killed in January than in the others. In all other respects the plumage of the birds was identical. Is not this unusual? I have killed redshanks at all periods of the year, but have never before observed anything of the kind, and should much like to know if any of the readers of the 'Zoologist' have done so. I am aware that ovarian disease is considered a cause of variations from normal plumage. In the present instance the bird was an adult female, as proved by dissection, but the ovary was to all appearance perfectly healthy.—*W. H. Power; City of London Hospital, Victoria Park, February 28, 1867.*

Canada Goose at Coombe Bissett.—On Monday, the 21st of January, a fine specimen of the Canada or cravat goose (*Anser canadensis*) was shot in a meadow at Coombe Bissett, Wiltshire, by Mr. Crosse, of the same place: it came into my possession the following day, and on dissection proved to be a male bird, weight twelve pounds; wing

measured from carpal joint to end of longest quill-feather $19\frac{1}{2}$ inches; full length $41\frac{1}{2}$ inches. Another was shot in the same locality on Saturday, the 26th of January, and was purchased by Mr. Marsh, of Ramridge House, to add to his collection: this specimen appeared to me to be the same in every respect as the one I have (a male bird in equally good plumage and condition). Mr. Whatman, of this city, told me he saw a flock of seven of these geese on the 19th instant, in a meadow at Homington, which is the adjoining village to Coombe Bissett, where the two birds were killed. From inquiries I have since made I cannot learn that these birds were kept on any ornamental water or lake in the neighbourhood; it may therefore be deduced that they are *bonâ fide* specimens of the bird in its natural state.—*Henry Blackmore; Salisbury, February 20, 1867.*

Tufted Pochard on the River Lea.—It may be interesting to ornithologists to learn that on the 20th of March a flock of the tufted pochard were observed on the River Lea, about a mile from Hoddesdon, between Carthagenia Weir and Charlton Mill. My son, who was taking a stroll with his gun, was fortunate enough to come upon them, and got two double shots and one single shot at them as they wheeled round him three times. Five fell to his first double shot, three to his second, and one to his single shot: of these he secured seven; the other two birds, being but slightly hit, fell into the river, dived and escaped among the sedges. Five of the specimens, being in good condition, are in the hands of our taxidermist, Mr. William Downing.—*William T. Hooper; Hoddesdon, March 22, 1867.*

Ferruginous Duck in Norfolk.—On the 18th of January last an immature male of the ferruginous duck passed into my hands for preservation; it had been killed a day or two previously, with other ducks, on the Broad at Hickling.—*T. E. Gunn; 3, West Pottergate, Norwich.*

Goosander in Wiltshire.—Mr. R. H. Bathurst informs me that his father's bailiff found a goosander on the banks of a lake, at Clarendon, Wiltshire: it was a fine male specimen, and was quite dead when found—about a week since. Its mouth was full of fresh-water weeds.—*A. Clark-Kennedy; Eton, February 12, 1867.*

Goosander and Shoveller Duck in the South of Ireland.—I have received for preservation male and female specimens of the above-named birds. The male goosander, which had a trout in his mouth, was shot by Mr. Taylor, on the Roughty River, Kenmare, County Kerry, four miles from the sea; the female was killed at Knock, County Clare, by Capt. Gore. The shoveller duck, or rather drake, was shot by Mr. Hendley, near the junction of the Blackwater and Funcheon Rivers, County Cork; the female by Mr. Dunscombe, in a bog near Blarney. The shoveller has some beautifully marked feathers under the wing, very useful to the salmon-fisher.—*W. A. Hackett; 38, Patrick Street, Cork.—From the 'Field.'*

Rednecked and Sclavonian Grebes and Great Northern Diver in Norfolk.—Two males of the rednecked grebe were obtained, one on the 28th of January at Marlingford, and the other on the 10th of February near Yarmouth: in the stomach of the first I found the remains of a frog, a water beetle, and a few hairs: in the stomach of the second were the remains of some small fish (probably roach), mixed with a quantity of its own feathers. Two specimens, both females, of the Sclavonian grebe were shot in the latter part of January or beginning of February; one at Rollesby and the other at Beeston Regis: the entire contents of their stomachs comprised a few small fish-bones, pebbles, and some of their own feathers. I heard of the capture of an immature bird

of the great northern diver at Hickling, about the 20th of February.—*T. E. Gunn*; March 4, 1867.

Nesting of the Blackthroated Diver.—I observe that in your 'Birdsnesting' you have omitted the blackthroated diver. Mr. Hewitson mentions it as having been found by Mr. Selby breeding upon most of the inland lochs in Sutherlandshire in 1834. Some ten years ago I received, from the island of North Uist, two eggs of this species in the yolk, together with the skins of the parent birds. These two eggs are still in my collection, and from their size cannot be confounded with those of the redthroated diver, which I have also received from the same locality: the eggs of the two species in my cabinet agree exactly with the illustrations in Hewitson's valuable work.—*H. W. Feilden.*

The Black Guillemot, an Addition to the List of Norfolk Birds.—In December last I saw the breast and wings of a bird which were cut into plumes for ladies' hats: I almost immediately identified them as belonging to an immature bird of the black guillemot: I afterwards received information that it was shot near Wells about the middle of the previous month (November). About the 21st of January last a second specimen, also an immature bird, was picked up dead on the beach at Salthouse, and passed into my hands for preservation; this on dissection proved to be a male. As no authentic record previously existed (as far as I am aware) of the occurrence of this species in this county, we may now fairly claim this as an addition to the Norfolk list of birds.—*T. E. Gunn.*

Little Auk, &c., at Henley-on-Thames.—The little auk was shot here, on a somewhat large pond, at the latter end of December last: it was in very good plumage. Wild fowl were plentiful during the hard frosty weather: a few curlews were about, and some few gulls paid us a visit. Woodcocks have been more plentiful this season around here than usual.—*Charles E. Stubbs*; *Henley-on-Thames, Oxon, March 15, 1867.*

Sabine's Gull in Cornwall.—The Rev. F. O. Morris states, in a late number of the 'Times,' that a specimen of Sabine's gull (a bird of the first year) was shot on the Cornish coast last month.

Gulls in Kent.—With regard to Lord Clifton's query (S. S. 637) respecting the gulls frequenting the "sprat fields" in Kent, I may state that I have generally found the blackheaded gull, in both immature and adult plumage, by far the most common in those situations. Next to this the lesser blackbacked gull, chiefly in immature plumage, is most frequently seen. The herring gull is, I fancy, uncommon; but owing to the similarity of the immature plumage of this bird and the lesser blackbacked gull, it is difficult, if not impossible, to determine the exact species, without actually shooting the birds—a proceeding I have at all times found exceedingly difficult to accomplish. The common gull is certainly uncommon, and does not frequent the fields in the neighbourhood of the smaller creeks of the Medway: I allude to the country between Gillingham and Halstow, where indeed I have not yet seen the kittiwake, and should doubt its leaving the main rivers except on rare occasions, it being I believe a more "sea-feeding" bird than most of the other gulls. The above remarks apply solely to the neighbourhood before mentioned. It is, however, possible that fields in the neighbourhood of the main rivers (both Thames and Medway) may be frequented in a different manner. The common gull, for instance, may be more often found, as I have at times noticed it numerous on the main rivers, when

there was scarcely a bird of the species to be found about the smaller creeks, where indeed it is at all times decidedly uncommon. The blackheaded is without doubt the gull that commonly follows the plough.—IV. *H. Power*; *Victoria Park Hospital, N.E., March, 1867.*

Gulls vomiting their Food.—I have just read in the 'Zoologist' for March (S. S. 625) a letter from Mr. Blake-Knox, in which he states that the common gull vomits such portions of its food as are indigestible, in the shape of jelly. This would seem to afford a little help towards the solution of a subject that has long been under my notice, but which no one has hitherto satisfactorily explained. I have observed for many years a translucent jelly lying on the "Heath," generally but not always within a hundred yards of a small pond; sometimes I have seen it on dry grass, sometimes on swampy, and not unfrequently on a small patch of rushes in the centre of this pond. It first makes its appearance about October and remains till now; it has no smell, and can surely proceed from no quadrupeds, from being found in the middle of the pond mentioned. The probability of its being any indigestible part of a bird's food seems to me a little unlikely, as this would give one the idea of *digested* food, being so clean, and there are no ascertainable pieces of animal matter amongst it. I have never seen a heron thereabouts, though I am always looking for birds there; and even if it proceeded from one, what should a heron be doing so far from water as I sometimes see this? and I never heard of or saw a gull of any sort in this particular locality. Some of the readers of the 'Zoologist' may be able to assist me in my endeavour to arrive at a satisfactory conclusion.—*H. Greenwood*; *Sandfield Lodge, Hampstead, March 21, 1867.*

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

February 18, 1867.—Sir JOHN LUBBOCK, Bart., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—*'Bulletin de la Société Impériale des Naturalistes de Moscou,' 1865, No. III., 1866, No. II.; 'Annales de la Société Entomologique de France,' 4e Sér. Tome v., 1865; 'Stettiner Entomologische Zeitung,' 1867, Nos. 1—3; 'Proceedings of the Natural History Society of Dublin,' Vol. iv. Part iii.; presented by the respective Societies. 'Beskrivelse over Lophogaster typicus, en mærkvædig Form af de Lavere Tiføddede Krebsdyr,' by Dr. Michael Sars; 'Norges Ferskvandskrebssdyr, Første Afsnit, Branchiopoda. I. Cladocera Ctenopoda (Fam. Sididæ & Holopedidæ),' and 'Beretning om en i Sommeren 1863 foretagen Zoologisk-Reise i Christiania Stift,' by G. O. Sars; 'Entomologiske Undersøgelser i Aarene 1864 og 1865,' by H. Siebke; presented by the respective Authors.*

Exhibitions, &c.

Mr. F. Moore exhibited specimens of *Tomicus monographus*, with portions of the

staves of a cask destroyed by this beetle, and read the following note respecting its ravages:—

“An official report has lately been received at the India Office from the Military Department at Madras, relating to the destruction of the casks containing the malt liquors sent out to India from this country for the use of our troops, and which is caused by a small boring-beetle perforating the staves of the casks to such an extent as to entail very considerable loss of the liquor by leakage. From an examination made in India of a large number of the perforated staves, it is there supposed that the insect first effects a lodgment beneath the hoops, which offer it a temporary shelter, and that it then bores into the wood and works its way in all directions. A large proportion of the holes run at right angles to the surface of the staves and reach from one side to the other, thus allowing free exit to the liquor, but others again traverse the wood in all directions. In some casks these perforations are literally innumerable, and taking a portion of a stave before me as a guide it is calculated that in the cask to which it belonged there were not less than 134,400 perforations communicating with the outer surface, most of which served as the exit for *several* of the beetles, as upon cutting the stave lengthwise they were found in Indian-file in all directions. The larva is stated to be of a white colour and armed with a pair of powerful jaws. The beetle is also stated to be very similar in appearance to that which perforates the bamboo, but much smaller and more slender in proportion to its length; and to be precisely similar in outward appearance to the species which attacks the ‘shola’ of which pith-hats are made. It is unknown when this insect first made its appearance in India. It is extremely probable that at no period since the first importation of malt liquor for the troops has it been entirely absent, but in former years the stock on hand was much less than at present, and the insect was probably less destructive and consequently its presence was not officially reported. As far back, however, as 1855, when the then Deputy Commissary-General was on a tour of inspection in Burmah, the destructiveness of this beetle was brought prominently to his notice when at Tonghoo. From that date until the year 1862 the insects increased in numbers, and still continue to be very destructive; in some seasons the wastage has been less than in others, but the insect has never at any time been entirely unobserved. Up to 1862 the ravages of this pest appear chiefly to have been reported from stations in Burmah, but in the same year it was observed at Jaulnah, and probably at other stations also, and it has now broken out again in the last consignment of malt liquor received at Secunderabad. The most difficult and important inquiry connected with this subject is the question as to where the beetle first came from. The generally received opinion in India appears to be that the germ of the insect is already in the wood when the casks are sent from England, and that it becomes developed and makes its appearance after its arrival. To support this theory, however, no satisfactory evidence has been adduced. It is believed that all the staves undergo a process of steaming before being made into casks, and this of itself would be sufficient to destroy the germ of any insect; moreover, the insect has been found within a very short time after the arrival of the casks in India, and yet it has never on any occasion been detected in casks when first received from the ship. On the other hand, it has been suggested that the insect drops from the bamboos which form the coverings of the carts and boats, but an examination of the insect found in the bamboo in Madras appears to show that, although of the same genus, the bamboo-borer is larger than that which attacks the casks. The length

of time after landing when the insect generally appears varies from a few weeks to several months. In the recent case at Secunderabad the casks when landed at Masulipatam were in perfect order, so much so that they attracted special notice: when they arrived at Secunderabad there was no trace of the insect, but after they had been a very short time in store the insects made their appearance, and continue to increase. Many causes have been brought forward as predisposing casks to the attacks of this insect. The first and most important is the use of unseasoned wood in making the casks. Committees were assembled at Calcutta some years ago to investigate the cause of the attacks of this insect, and its presence was ascribed by them also to the use of unseasoned wood in the casks. The fact that the use of unsuitable wood predisposes the casks to the attacks of these insects is not unlikely. It is well known in India that, if bamboos are cut at a certain season when the sap is in them, they will be assuredly attacked by the borer, whilst bamboos cut from the same spot at a proper time will as certainly be free from them. It has also been stated that a long inland journey by cart or boat tends much to cause the increase of the insect. It is difficult to give any accurate estimate of the damage caused by these insects. At times they are not very numerous, and by selecting the worst casks for immediate use the wastage is not excessive, but at other times they are so abundant that no amount of care or trouble can keep them under, and in a report last received from Tonghoo the wastage has risen to fifty per cent. The Assistant Commissary-General at Rangoon states that he has applied a strong infusion of cutch as a remedy to the casks, but that on the following day the insects were as active and vigorous as ever: observing that some salt-meat casks escaped, a strong brine was next thoroughly applied, but with no better success. Boiling water was afterwards tried, and after three applications was perfectly successful."

Mr. Moore added that *Tomicus monographus* was figured in Ratzeburg, but had not hitherto been found in Britain; the casks in question were made of oak, but probably not of British growth.

Mr. Newman exhibited a stem of *Salix capræa*, to show the mode in which, under the attacks of *Sesia bembeciformis*, the bark divides in three layers, as more fully described in the 'Entomologist,' ii. 140.

Mr. Newman exhibited a specimen of *Naclia ancilla*, *Linn.*, a moth new to Britain, taken on the Sussex coast by Mr. T. Wildman.

Mr. Newman exhibited the lock of a door, one of several which in 1866 were found at the Kent Waterworks, Deptford, to be completely filled and choked up with nests of *Osmia bicornis*, a portion having been forced out by the insertion of the key; the locks were in pretty constant use, so that the whole nest must have been built in the course of a few days.

Mr. Newman also exhibited two specimens of a *Formica*, resembling *F. herculeana*, which were supposed to have been found in decayed pine-stumps in Scotland; but he hesitated to announce it as a new British ant, in consequence of the doubt entertained by Mr. F. Smith.

Mr. F. Smith thought the specimens in question were distinct from *Formica herculeana*, and also from *F. pubescens*: they appeared to be identical with an ant from North America, which had been sent to him from New York as a representative of the European *F. herculeana*, but which in reality was a different insect. An

examination of the specimens exhibited, particularly of the worker, led him to believe that they had been in some old collection for years; the pins were of very antique pattern, and the abdomen of the female had been stuck on with gum: he thought there must have been some mixing of specimens, and that these had by accident been included in a British collection: the evidence of the actual captor was wanting, and until that was forthcoming, or the species was recaptured, he could not but think that the supposed occurrence in Scotland was a mistake.

Mr. F. Smith exhibited a collection of Hymenoptera taken by Mr. Du Boulay at Champion Bay, N.W. Australia, containing a fine series of Formicidæ, comprising about fifty species; twenty-four of the genus *Camponotus*, six of *Polyrhachis*, eight of *Ponera*, one of *Odontomachus*, four of *Crematogaster*, one of *Pseudomyrma*, four of *Pheidole*, and four species of *Cryptoceridæ*, belonging to the genus *Meranoplus*. The collection also comprised twelve new species of *Thynnidæ*, three of *Pompilidæ*, eleven new species of *Mutillidæ*, thirteen of *Apidæ*, four of *Vespidæ* belonging to the genus *Paragia*, and two remarkably beautiful species of the genus *Odynerus*. Amongst the *Formicidæ* was a very beautiful species of ant, which Mr. Smith proposed to name *Pheidole hyacinthina*, from the resemblance of its body to the gem *Hyacinthus*.

Mr. S. Stevens, on behalf of Mr. Higgins, exhibited some Coleoptera and Lepidoptera also sent from Champion Bay by Mr. Du Boulay. Amongst the beetles were about a dozen new species, some fine *Scaritidæ*, *Buprestidæ* (*Stigmodera*), a new *Cetonia*, &c.

Mr. Stainton exhibited two specimens of the imago (one a dwarf), and a drawing of the larva, of *Tinea oleastrella* of Millière, which he had bred from the olive, the larvæ having been sent him by Mr. J. T. Moggridge, from Mentone, in November, 1866. Mr. Stainton had expected that when the *Oleastrella* made their appearance they would be referable to the genus *Swammerdamia*, but to his surprise they differed essentially from that genus, and came much nearer to *Zelleria fasciapennella*, though from the thicker palpi and narrower anterior wings they scarcely seemed congeneric with that species.

Mr. Stainton exhibited a crippled specimen of *Margarodes unionalis*, which also he had bred from olive: the species was on the Continent reputed to be very difficult to rear.

Prof. Westwood mentioned that on the 7th of February Prof. Rolleston had taken a hibernated specimen of *Vanessa Urticæ* on the wing, and being anxious to know whether any food or fatty matter had been stored up for winter consumption, he dissected it. The hibernated specimens were usually females, fecundation taking place in the autumn, the males then dying and the females lying torpid through the winter. The dissected specimen, however, proved to be a male, and in its abdomen was found a quantity of yellow greasy matter, which under a quarter-inch lens distinctly shewed oil-globules, demonstrating the secretion of fat for the purpose of hibernation.

Papers read.

Mr. A. R. Wallace read a paper "On the *Pieridæ* of the Indian and Australian Regions:" forty-seven new species were described, many of which were exhibited; and the descriptions were preceded by introductory remarks on the geographical distribution of the *Pieridæ* and on the existence in that family of cases of mimicry.

Mr. Herbert Jenner Fust, jun., communicated a paper "On the Distribution of Lepidoptera in Great Britain and Ireland," showing the occurrence or non-occurrence of all the indigenous species, except the Tortrices and Tineæ, in provinces and sub-provinces, after the manner adopted with respect to plants in Watson's 'Cybele Britannica.'

Mr. Edward Saunders communicated a paper entitled "Notes on Rare and Descriptions of New Species of Buprestidæ, collected by Mr. Lamb at Penang." Fifteen new species were characterized, one of them being the type of a new genus, *Xenopsis*, closely allied to *Castalia*.

March 4, 1867.—FREDERICK SMITH, Esq., Vice-President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—
'On certain Entomological Speculations, a Review,' by A. S. Packard, jun., M.D.; presented by the Author. 'The Zoologist' for March; by the Editor. 'The Entomologist's Monthly Magazine' for March; by the Editors.

Purchased:—Lepelletier de St. Fargeau et Brulle, 'Histoire Naturelle des Insectes Hymenoptères,' 4 vols. and 4 parts of coloured plates.

Election of Member.

Alexander H. Clarke, Esq., of 16, Furnival's Inn, E.C., was ballotted for, and elected a Member.

Exhibitions, &c.

The Secretary exhibited a box of Lepidoptera and Coleoptera collected in Madagascar and Mayotte by M. François Pollen, of Leyden, by whom they were presented to the Society; perhaps the most interesting insect was *Sternotomis Thomsoni*, *Buquet*.

Mr. Bond exhibited specimens of a small Ichneumon, parasitic on the larva of *Dasyptolia templi*, no less than 447 having emerged from a single larva.

The Secretary exhibited drawings of the male and female of a species of *Phasma*, together with the larva and pupa of an Ichneumon which infested the female, and the imago of a species of Chalcididæ which was said to infest the egg of the *Phasma*; and read the following note, communicated by Prof. Huxley:—

"*Anisomorpha buprestoides*.—This *Phasma*, found by Titian R. Peale in South America, has come under my observation in the Santa Cruz Mountains, Jamaica, in one locality only, to which it curiously seems confined. As nothing appears to be known of some of its striking peculiarities, it may not be uninteresting to notice in detail the result of an attentive study of its habits and nature. It is of a dirty yellow-ochre colour, with its antennæ, which are long and slender, composed of alternate black and yellowish joints. The male, which is much smaller than the female, is about

1½ inch in length, and the female 2¼ inches. The superior wings are rudimentary; the inferior are large, delicate and transparent; and as the latter far exceed the tegmina in size, and therefore require some provision for their defence, the anterior portion is greatly thickened, serving as a plate, beneath which the other part is folded longitudinally. In the prothorax lie two elongated spindle-shaped glands, about one-fourth of an inch in length, which secrete a white fetid fluid. These are surrounded by a network of nerves, by the contraction of which, at the will of the insect, the fluid is discharged through two raised pores which are situated in the anterior portion of the prothorax. When disturbed or attacked they make use of this means of defence, and the pungent odour produced by the milky fluid is as powerful as it is offensive. These insects are rarely seen otherwise than in a state of copulation, the male lying along the back of the female. When feeding, the male leaves his position on her back, still however remaining in apparent sexual contact. The young females are wingless till nearly full grown, and lead a single life up to that period. The larva resembles the imago, but is apterous; the pupa has rudimentary wings. With regard to the habits of these Phasmidæ, they are lucifugous and gregarious. During the day they hide themselves in the holes of trees, and amongst brushwood where it is sufficiently dense to exclude the light, and also in the cellars and behind the boarding of houses. In these nooks they arrange themselves in thick clusters. At dusk they issue forth to feed, and at break of day return to their hiding-places. Their mode of progression is extremely slow, except when alarmed, and they seldom make use of their wings. They are found in greatest numbers in the months of May, June and July. They subsist in this locality entirely upon the leaves of the *Bignonia chinensis*, which shrub forms a ledge in front of Belmont. Any evening after dark, by the light of a lantern, hundreds of pairs may be counted feeding greedily upon the young leaves of this hedge. It is very interesting to watch the curious and rapid manner in which they cut the leaf, taking a narrow curved strip from right to left, and then eating back as hastily in the opposite direction till the entire leaf is consumed. The eggs of this insect are cylindrical, about one-eighth of an inch in length, tuberculated, with an oval depression one side, and fitted with a valve at one end which is surmounted by a single tubercle in the centre: they lay them during the day in their hiding-places, one by one. The female is infested by the larvæ of some *Ichneumon* fly, of which it is to be regretted no specimens have been procured, owing to a series of unlucky accidents happening to the pupæ, just as they had become matured. These larvæ are three-eighths of an inch in length, and are provided with two minute hooks, by means of which they fix themselves to the interior of the insect. As many as seven have been found in one *Phasma*. Upon being taken out they make vigorous but unsuccessful attempts to creep; becoming partially exhausted as it were from these efforts, they gradually become quiet, and in a few hours they change to a dark brown chrysalis. After remaining in the *Phasma* until the period arrives for their transformation into the pupa state they find their way out singly and at intervals, and in a few hours assume the chrysalis form. The *Phasma* appears to suffer no inconvenience, and, what is most curious, no injury from them; it is unknown in what manner they make their egress from the body of the host. The eggs also are victimized in a similar manner by a minute species of *Ichneumon* fly, one of which has fortunately been obtained; it is probably one of the *Chalcididæ*: all the transformations take place within the egg, and when fully developed the perfect *Ichneumon* fly emerges therefrom. No parasitic

insects have as yet been found to infest the male. It appears to me that the name *Anisomorpha buprestoides* is an incorrect appellation, as this *Phasma* is isomorphous. Perhaps the name of *Phasma graveolens* would be less open to objection, and it would at the same time express one of its striking peculiarities, viz. the offensive fluid secreted by the glands.'—CHARLES B. KING.

Mr. Bates observed that the author of the note was probably in error in attributing the name of *Anisomorpha buprestoides* to the species in question, which seemed to be a true *Phasma*.

Mr. F. Smith remarked upon the peculiarity of all the transformations of the Chalcidite parasite taking place within the egg of the *Phasma*; such a mode of development was novel, if true, but he suspected some error of observation.

Mr. McLachlan suggested that the cocoon of the *Chalcis* had been mistaken for the egg of the *Phasma*.

Mr. A. R. Wallace requested the assistance of Members in making observations to enable him to clear up a difficult point. Mr. Darwin had arrived at the conclusion that, as a rule in the animal kingdom, brilliant colouring was due to sexual selection: being struck, however, by the apparent exception to this rule presented by the bright hues of many larvæ, principally of *Lepidoptera*, which, being sexless, could not owe their gaudy attire to sexual selection, Mr. Darwin had inquired whether Mr. Wallace could suggest any explanation of this seeming contradiction of the rule. A theoretical explanation occurred to him, and it was for the purpose of ascertaining whether this theory was well or ill founded that he asked the aid of others. Many caterpillars were mimetic, imitating the leaves or flowers on which they fed, and thus obtaining protection from their enemies; others were hairy or spinose, and were probably thereby preserved from attack; whilst others again possessed neither of these modes of protection, but were conspicuous by their lively coloration. Holding that nothing in nature was without its cause, nothing without its object, and believing in the principle of natural selection or the preservation of the fittest, he concluded that this conspicuous colouring must be in some way useful to those larvæ which were endowed with or had acquired it; but in what way was it useful to them? Just as certain moths were agreeable and others distasteful to birds, so also he did not doubt that certain larvæ were agreeable and others distasteful to birds; but distastefulness alone would be insufficient to protect a larva unless there were some outward sign to indicate to its would-be destroyer that his contemplated prey would prove a disgusting morsel, and so deter him from attack. A very slight wound was sufficient to kill a growing caterpillar, and if seized by a bird, even though afterwards rejected as nauseous, its death would nevertheless ensue; the distasteful larvæ therefore required some distinctive mark, something by which they may be contrasted with and separated from the agreeable larvæ, in order that they might be freed from the attacks of birds. Brilliant coloration would be such a distinction as was required; the larvæ which were attractive to birds, when not exterminated, were doubtless preserved from extinction by other protective qualities; whilst those larvæ which were distasteful to birds, and were not protected either by mimicry, hairiness, offensive smell, or otherwise, might be distinguished by their colour from those upon which birds delighted to feed. Mr. Wallace's suggestion therefore was that, as a rule, the brilliantly coloured larvæ were those which were distasteful to birds: it was on this point that he wished to collect observations and statistics, and he should be glad if any who kept birds, and particularly indigenous

birds, would make experiments with different larvæ, to ascertain which were eaten and which rejected.

Mr. Pascoe remarked that toads ate Carabidæ, notwithstanding their offensive smell; and a larva which to one species of bird would be disgusting might to another be attractive.

Mr. J. J. Weir and Mr. M'Lachlan respectively referred to the larvæ of *Cucullia* and *Diloba*, both of which were conspicuous, but apparently free from attack.

Mr. Bates suggested that information was also wanted as to what larvæ were most liable to be infested by Ichneumonidæ, and inquired whether amongst the British Lepidoptera there were many, or any, whose larvæ were not subject to the attacks of Ichneumons; and if any, were they conspicuous larvæ?

Papers read.

The following papers were read:—"Notes on the genus *Raphidia*," by Dr. Hagen, translated from the French by Mr. M'Lachlan. "Description of a new Carabideous insect from Japan," (*Damaster auricollis*, *n. sp.*), by Mr. Charles O. Waterhouse. "Note on a genus of Dynastid-Lamellicorns, belonging to the family Pimelopidæ," (genus *Dipelicus*, *Hope*), by Mr. C. O. Waterhouse.

New Part of 'Transactions.'

Trans. Ent. Soc., third series, vol. v., part 5, containing Dr. Wallace's Prize Essay on the Oak-feeding Silkworm from Japan, and being the first part published for 1867, was on the table.

March 18, 1867.—Professor WESTWOOD, Vice-President, in the Chair.

Donation to the Library.

The following donation was announced, and thanks voted to the donors:—"Annales de la Société Linnéenne de Lyon," vols. 12, 13; presented by the Society.

Election of Members.

Dr. Arthur E. Davies, Royal College of Surgeons, Edinburgh, was elected a Member. M. Barbier-Dickens, 1bis, Rue Paradis Poissonnière, was elected a Foreign Member. F. Archer, Esq., 3, Brunswick Street, Liverpool, was elected an Annual Subscriber.

Catalogue of British Insects.

The Chairman announced that the Council had in contemplation the publication of a general Catalogue of British Insects, but so little attention was paid to the Diptera that there would be great difficulty in compiling even an approximately complete list of the indigenous species of that Order. Entomologists throughout the United Kingdom were requested to collect Diptera, noting the times and localities, and to assist the Council in the preparation of the Catalogue.

Papers read.

The following papers were read:—"Descriptions of New Species of Cryptoceridæ,"

by Mr. Frederick Smith. The new species were eight in number, four of the genus *Cryptocerus* from South America, three of *Meranoplus* from West Australia, and one of *Cataulacus* from Borneo.

"On Species and Varieties," by Captain Thomas Hutton, F.G.S. After referring to an assertion by Dr. Bree in 'The Field' newspaper, February 4, 1866, that the identity of the species *Attacus Cynthia* and *A. Ricini* "is proved by their breeding together, and by the produce after three or four generations having a tendency to return each to its separate type," an opinion in some measure endorsed by Dr. Wallace, who was "inclined to agree with Dr. Bree that there is but one species, modified by climate, food, and domesticity," Captain Hutton continued as follows:—

"That these opinions are erroneous will, I think, become apparent when we consider that *Bombyx Huttoni*, which cannot be domesticated, and the cultivated *Bombyx Mori* of China, two undoubtedly distinct species, will likewise breed together, and produce prolific eggs, as is the case with several other species, so that Dr. Bree's opinion at once meets with a substantial refutation; besides that there being, as he says, a tendency to return each to its separate type, is a contradictory admission that the insects belong to distinct species, since if they belong to separate types they clearly do not belong to the same specific type. Were they of the same species there would be no tendency to revert, because there would be nothing to revert to, and *Attacus Ricini* when uncrossed by *A. Cynthia* shows no tendency to revert to that species. The very fact of there being this tendency to revert shows that the species are distinct, and that the cross being contrary to the laws of nature, an effort is being made by her to cast out the cross and return to the original and separate types. But if the mere fact of species breeding together is to be accepted as a proof of identity, then does Dr. Bree very satisfactorily prove that the horse and the ass are of the same species, and that the apparent degeneracy of the latter is, according to Dr. Wallace's view, to be attributed to modification by climate, food, and domesticity. It may, however, be objected in this case that the progeny are not prolific *inter se*, which greatly alters the case; nevertheless the progeny are prolific if crossed again either by the horse or the ass. I am, moreover, of opinion that the power of producing offspring is not due to the near affinity of *species*; but is altogether dependent upon the fact that the parents, being of the same *genus*, must necessarily possess the very same structural model, without the least reference to or interference with specific characters. But if *Attacus Cynthia* and *A. Ricini* are to be regarded as one and the same species, modified by climate food and domesticity, how comes it to pass that specific characters have been obliterated and others acquired? Diminished brilliancy of coloration might doubtless be induced by climate, food, and other causes, but there would be no change of typical or specific characters, while colour, under an alteration of treatment, might easily be restored; but I would ask, if *A. Ricini* be only a modified variety of *A. Cynthia*, how have the rows of black spots on the larvæ of the latter become obliterated, and the covering of white down on the body of the imago of *A. Ricini* been acquired? For these black spots are not merely superficial and evanescent marks, which, like the white powder on the body of the larva, can be removed, but are actual typical dermal marks and colouring of structure, and are no more capable of obliteration than are the spots and roses of the leopard and other species. Climate and food could exercise no influence over such marks, because they are imprinted by nature in the epidermis as

typical and specific characters, and are always present whether the insect occurs in the temperate mountains of Mussooree or under the tropical sun of Assam, precisely as are the spots on the leopard, whether found in Southern India or bordering on the snows of the Himalaya. Were I to admit that such specific distinctions could be obliterated, and others acquired by a change of food, climate and domesticity, it would reduce me to the necessity of adopting Darwin's theory that our present species were formerly mere varieties of some types that have died out; while if *A. Ricini* has in truth descended from *A. Cynthia* and has attained permanent specific characters of its own, which is undoubtedly the case, then can it no longer be considered as identical with *A. Cynthia* from which it first proceeded as a variety, and thus on the Darwinian principle are the species proved to be distinct, and Dr. Bree's opinion is again refuted.

. . . . Experiments instituted in India in 1859, by crossing the wild Himalayan silkworm, *Bombyx Huttoni*, with the long-domesticated *Bombyx Mori* of China, Cashmere and Milan, produced the following results. The crossing was reciprocal, the wild female pairing with the domesticated male, and the domesticated female with the wild male. The coupling of the wild male with the domesticated female was effected with the greatest difficulty, and all the eggs thus obtained shrivelled and were unproductive. With regard to the other cross, the difficulty was somewhat less, because the domestic males readily and eagerly sought the females, which however were shy, and several, though not all, produced eggs. Very few of these however were prolific, the greater number, as in the former case, withering and drying. The few larvæ produced from this cross retained all the intractable habits of the wild species, and were accordingly placed upon trees in the open air, where in due time they spun. In the larvæ, cocoons, and moths, there was no perceptible difference from the wild race. Similar experiments were again tried and carried on even to a second cross with the domestic stock, but it was found that, cross as one might, through every stage the insect invariably reverted to the wild *B. Huttoni*, and neither in appearance nor in habits at all resembled the domestic species. The wild stock then preponderated, and Nature refused to promote the cross. Experiments with *B. Mori* and *B. Cræsi*, and others with *Attacus Cynthia* and *A. Ricini*, produced exactly the same results, Nature always favouring the strongest or healthiest species. Hence it is evident that Nature, so far from approving of these intercrossings, has in every case shown a strong disposition to revert to the most natural or to the strongest species, and that in every instance she has succeeded. It may be objected that when, as in my opening remarks, I declare that there is no tendency to revert unless the parents are of different species, I contradict my former remarks on the reversion and restoration of the silkworm (see *Trans. Ent. Soc.*, 3rd series, vol. ii.); this however is not the case, for the object of reversion is to cast out something that is unnatural and inimical to a species, so that Nature, in order to preserve her types, always endeavours to cast out the effects of a cross; and where, as in *B. Mori*, the constitution of the insect has been destroyed by long-continued domestication, the effort is to revert from a sickly to a healthier condition, and not to a different species." The remainder of the paper was a criticism of the Darwinian theory of Natural Selection, the writer's views being principally enforced by arguments beyond the province of the Entomological Society.—

J. W. D.

Letters on Variation in Lepidoptera. By EDWARD NEWMAN.

LETTER THE FIRST.—INTRODUCTION.—SEXUAL VARIATION.

My dear Mr. Wollaston :

I address these letters to you because I thus ensure myself a competent and a candid reader: of all entomologists you have proved yourself the most competent to deal with the mysteries of variation, and of all our scientific writers you are certainly the most candid, giving to every phase of every subject the fullest and most careful consideration, and always deferring to the force of truth, unbiassed by preconceived opinions. Still I venture to think that certain additions may be made to what you have published, just in the same way that we occasionally see a rider tacked on to a Bill in its passage through Parliament, the Bill itself remaining intact and efficient, but the rider filling up some little gap which the original author of the Bill, in his more comprehensive statesmanship, had either overlooked or dismissed as scarcely worthy his consideration.

Of course every man is right in deducing his conclusions from facts he thoroughly understands; and of all men living I believe you are best acquainted with Coleoptera; but this is scarcely sufficient: a man may have studied the comets for half a century, and may theorize logically and beautifully on their periodicity and orbits, but if he forget for a moment that the steady-going, homely, unattractive planets are ever pursuing their monotonous career, he is scarcely qualified to discourse on the solar system.

It seems to me that while lingering so fondly over the Coleoptera, and studying so thoroughly the phases of their climatal variation, and thus adding invaluable stores of knowledge to our favourite Science, you have somewhat contracted the area of research and inquiry; you have, in a word, treated variation as an isolated phenomenon, rather than as a collection of phenomena which require minute investigation and judicious classification before we can render them available: indeed, you treat variation as you would a beautiful and unknown beetle that has just fallen in your path; you make yourself thoroughly master of its structure; from its structure you are led to theorize logically and truthfully on its economy; and finally you contrast it, with a master's pen, with its congeners and relations, and thus reach conclusions which no man can gainsay. In contradistinction to this, I would rather regard variation as a collection of

beetles naturally but accidentally associated, as we sometimes find them after a flood, a sarcophage and phytophage, the lion and the lamb, lying down together, and haply a necrophage—like the vulture or the hyæna—curiously examining whether death had yet adapted them to his peculiar taste.

But in order to render my simile more intelligible, we may imagine Hymenoptera and other classes of insects also the victims of the flood, and that we are busying ourselves in separating and classifying an assembly of which the component parts are incongruous, although associated by Nature herself. In the first place the phenomena of variation offer a convenient division into normal and abnormal. Normal variations are those which *must inevitably* occur, as from difference of sex, the alternation of generations, or climatal conditions: the first of these has obtained here and there, now and then, a modicum of attention: the second is a perfectly novel field of study—a field hitherto uncultivated; the plough of observation, the harrow of thought, have never touched it: it is still virgin soil; and yet it is certain that a vast proportion, I will not venture to say the majority, of our book species owe their origin to this source: the third has become attractive through the labours of Mr. Darwin and yourself.

There is also another phase of normal variation, which, whether specific or only trivial, is a problem requiring solution. I purpose recapitulating and extending my observations on this branch of the inquiry, and also citing *in extenso* the profound remarks of Professor Westwood, who has evidently given his best attention to—I would say thrown his whole mind into—the subject. I allude to the existence of pairs of insects, as in the instance of *Acronycta Psi* and *A. tridens*. This phase of variation, like those resulting from difference of sex or climate, or from alternation of generations, is rendered imperative by some law of Nature hitherto undiscovered.

Abnormal variation stands on a very different footing, and requires a very different mode of treatment: it seems in many instances to be a mere freak of Nature, a kind of *phrenitis* to which she is very subject; but still there is “a method in her madness,” a method that demands our most devoted attention: as examples of this method, I need only mention the frequency of albinism in many quadrupeds and birds, and its utter absence from other quadrupeds and birds, however nearly related: this is but one of the hundred phases that abnormal variation is known to assume.

Variation resulting from sex, alternation of generations, climate and pairs, is an evidence of the existence of certain absolute laws. Abnormal variation seems rather to result from a departure from those laws, or to be exceptional; and I would here take the liberty of asserting my belief that exceptions often afford a direct clew to the rules which they seem to nullify, and that he who disregards the exception is incompetent fully to understand and appreciate the rule.

Now, turning to your little volume, which I always read with reverence and love, you will, I am sure, pardon me when I say that I think you have been unfortunate in selecting the Coleoptera as illustrating your views. I am aware coleopterists pride themselves on the greater facilities with which a coleopteron may be examined; it has generally no clothing to interfere with the thorough investigation of its external structure; but the coleopterist has plumed himself too much on this; he has been content with a perfect knowledge of external structure, and therefore has given but little thought to sex, and none whatever to life-history. Now the lepidopterist will be found assiduously studying the female parent in the act of oviposition, will minutely examine the egg, count its longitudinal costæ and transverse striæ, number the days before the larva emerges, and when it has emerged note every ecdysis, and every change of form and colour incident to each; observe in what manner it prepares for pupation, and note with painstaking accuracy the form and colour of the pupa: finally, he watches it burst the serecloths in which it has been fettered, and assume its ultimate perfection. He thus becomes thoroughly acquainted with his subjects before they attain that point in their existence at which the investigations of the coleopterist begin. He knows that all the produce of one batch of eggs should have one name: they may vary infinitely in size, form and colour, but if the parent be *Chelonia caja* or *Abraxas grossulariata* so are the progeny: he never thinks of dividing them: you know, my dear sir, how different all this is with the coleopterist. You know better than I do, how that an additional stria on an elytron, a darker or paler tip to an antenna, is amply sufficient to raise a bembid or a staph to specific rank: you know the coleopterist dotes on these differences; and will print us a hundred pages at the shortest notice in which these differences are to him towers of strength. No lepidopterist has created a species out of either *Chelonia caja* or *Abraxas grossulariata*: any coleopterist would have created a hundred had the same difference occurred among beetles, for he could not have consulted life-history.

Until his objects are chloroformed and carded the coleopterist has no knowledge of them whatever; he really ignores all the preparatory stages of their existence, and scarcely alludes to the fact of their having possessed life: it is on this ground that I think the lepidopterist more likely than the coleopterist to appreciate justly the teaching of variation.

Let us then confine our attention to the Lepidoptera on this sole ground, the better knowledge of their preparatory states, the certainty I may say with which we associate all the individuals of one brood, however they may differ.

SEXUAL VARIATION.

1. *Disparity in Size.*—The first difficulty, the primary stumbling-block in our path in every search after truth, is hypothesis: nothing has delayed the truthful explanation of the phenomena of the solar system so effectually as the vague hypotheses so pertinaciously supported by authority; it is thus with every inquiry into the secrets of Nature; and it is because you, my dear sir, dare to look Nature fully in the face, and to inquire what *is*, rather than what *ought to be*, the method she adopts, that I have connected your name with these investigations. On the very threshold of our inquiry into sexual variation we find the Darwinians, or as we may call them the evolutionists, have placed an enormous stumbling-block: they say that the females of insects are larger than the males: in order to establish their views this ought to be so, but it is not. Let the genera *Lucanus* and *Dynastes*—they are the most easy of reference—reply. I have urged this repeatedly in conversation, and have compelled those who maintain the hypothesis to take refuge in the Lepidoptera. Allow me to explain my dissent from the now prevalent opinion on this subject, even as regards Lepidoptera.

The diurnal Lepidoptera exhibit a certain amount of disparity in the magnitude of the sexes, and the females have the advantage, but it is only necessary to arrange a series of any species by the size of the individuals, and it will become very evident to those who can readily distinguish the sexes, that the twenty-five smaller individuals are by no means invariably males, nor the twenty-five larger ones females; but the males and females alternate with something approaching to regularity. The largest and most familiar groups of nocturnal Lepidoptera are the *Ursinæ*, the *Geometræ* and the *Noctuæ*, but in neither of these does any rule obtain. Beginning with the

Ursinæ, we find the males larger in Procris, Euchelia and Euthemonia; the females in Callimorpha and Euchelia; the sexes alike in Zygæna, Nola, Nudaria and Arctia. In the Geometræ, the males are larger in Phigalia, Nyssia, Acidalia, Scodiona, Selidosema and Hybernia; while in Urapteryx, Angerona and Amphydasis the females mostly have the advantage; but these are the exceptions: in an overwhelming majority there is no disparity in size, and the same may be said of the Noctuæ. Certain insects are found in each group in which the sexes differ in this respect from their immediate congeners: thus the females of Lithosia quadra, the males of Larentia multistrigata and Miana arcuosa, and the females of Nonagria Typhæ and N. lutosæ, are notably larger than the opposite sex, and yet each of these is surrounded by closely allied species in which no such difference obtains.

In reply to these observations it has been urged that the females generally are heavier, although not possessing a greater area of wing surface; but this also is hypothesis, and is not supported by the test of weighing: and were it established that a gravid female exceeded a male in magnitude or weight, we should scarcely render this available, or pertinent to the matter under consideration.

Disparity of Form.—In many of the instances I have mentioned of the males exceeding the females in size, the discrepancy is accompanied by a marked change in form, the wings being partially or entirely absent. In the genus *Psyche*, which, as at present constituted, is perhaps the most comprehensive genus of Lepidoptera, there is not a single species of which the female presents the slightest appearance of a lepidopterous insect: none of them have wings, a few—a very few—have legs, still fewer scales, and in a great majority of those minutely examined not a trace of antennæ has been found. Nevertheless the males are remarkable for intense and restless activity on the wing, for the possession of perfect legs and for the great development of their plumose antennæ. In a thousand instances the volatile males of Lepidoptera escape the notice of scientific travellers, while the apterous females are seen running like spiders over rocks and on the trunks of trees, and are invariably regarded as creatures Darwinized by isolation or by climatal conditions.

Disparity of Colour.—This is the most familiar, although perhaps the least important, phenomenon in the variations of sex: it appeals directly to our sense of sight, and cannot escape the notice of the most superficial observer: as an instance I need only remind you of the sooty black male, and snowy white female of *Arctia mendica*. But this

branch of my inquiry seems to require a somewhat more precise illustration.

We shall all admit,—at least all candid minds will be willing to make a few preliminary admissions, as thus :—*First*, that the disparity between sexes must be very great before fathers of our Science describe them as distinct species, and before we as humble students seek thus to retain them. *Secondly*, that Linneus and Fabricius are the fathers of our Science ; and that Hübner and Haworth are the fathers of this particular branch of the Science, named Lepidopterology. *Thirdly*, that the insects ever present in our gardens, our fields and hedges, and always intruding themselves on our notice by their familiar if not destructive habits, afford us the very best and most ready opportunities of studying Nature's law. I think perhaps half a score examples of this, as well as other phases of variation, will be sufficient to illustrate my meaning. I need scarcely explain that the generic names which I employ are those now in use, not those of the authors whose specific names I have cited.

1. *Satyrus Jurtina* of Linneus is the female of *S. Janira* of Linneus.
2. *Hepialus Jodutta* of Haworth is the female of *H. hectus* of Linneus.
3. *Limacodes Bufo* of Fabricius is the female of *L. Testudo* of Linneus.
4. *Lithosia quadra* of Linneus is the female of *L. deplana* of Fabricius.
5. *Euthemonia Sannio* of Linneus is the female of *E. russula* of Linneus.
6. *Fidonia tiliaria* of Linneus is the female of *F. piniaria* of Linneus.
7. *Hybernia incompletaria* of Haworth is the female of *H. aurantiaria* of Linneus.
8. *Hybernia luctuaria* of Haworth is the female of *H. progemmaria* of Hübner.
9. *Anisopteryx apteraria* of Haworth is the female of *A. æscularia* of the Vienna Catalogue.
10. *Camptogramma gemmata* of Hübner is the female of *C. fluviata* of Hübner.

These assertions are not merely dogmatical ; they result from actual observation, from the careful breeding of the insects from the egg, and are now universally received as so many simple truisms, and yet no

higher authority could possibly be adduced for considering the twenty names I have cited as representing twenty species, but it is not so, for the seemingly overwhelming weight of authority is crushed by the inexorable logic of facts.

Believe me, with every sentiment of respect and esteem, to remain,

Dear Mr. Wollaston,

Faithfully yours,

EDWARD NEWMAN.

Peckham, October 1, 1866.

Ornithological Notes from Norfolk, for December, 1866, and January and February, 1867. By HENRY STEVENSON, Esq.

(Continued from S. S. 548).

In spite of the extreme severity of the winter there has been an extraordinary dearth of ornithological rarities, and at no time have our markets exhibited either the quantity or variety of wildfowl not unfrequently met with in far milder seasons. In my last notes (S. S. 595) I alluded to the large number of fowl which passed to the southward in advance of the first snow-storm on the 19th of November, and the same fact was observed at Yarmouth just previous to the very severe weather that commenced on the 1st of January, and, with a short interval between the 5th and 11th, continued up to the evening of the 22nd. The gunners on Breydon did little or nothing, and the shallow waters of the Broads being frozen up presented no attractions for either fowl or waders. As usual, however, in such seasons our resident species suffered greatly, not only from the cold and scarcity of food, but from the incessant persecution of idle hedge-poppers. Large bunches of thrushes, blackbirds and starlings at the poulterers' shops, made one grieve for the loss of so many merry songsters, these being for the most part home-bred birds, the regular migratory flights having passed on to the south long before. Kingfishers of course, deprived by the intense frosts of their ordinary means of subsistence, fell easy victims, in their enfeebled state, to the rage for "plumes," and in Norwich alone over thirty specimens were brought in to our birdstuffers for preservation. I have seen also nearly twenty green woodpeckers, all shot within the same period, but in neither case have I any reason to believe, in this instance, that the number killed has anything to do

with migratory arrivals. The French partridges, as usual, bewildered by the snow, were shot in larger numbers out of the fences, and in one instance as many as seventeen brace of birds, chiefly "red-legs," fell to a single gun: many of these birds showed the effects of the weather in their wretchedly poor condition, and even the English birds, in some places, appeared to suffer. As before stated, the denizens of the Broads were all frozen out: the coots, as usual, betook themselves to the salt-marshes and the tidal waters of Breydon, where large quantities were killed by the punt-gunners. Many herons have been also killed, both on the coast and the inland streams and rivers. The waterhens, still reluctant to leave their haunts in the great reed-beds, have died miserably from cold and hunger, or have met a less lingering death from the savage attacks of the gray crows, who have satisfied their carnivorous tastes by destroying all the enfeebled birds they could find. In some cases also the unfortunate waterhens have been found dead on the ice, frozen to the surface by their wings and tails, and in others their tails have been found adhering, the poor birds having lost them in their efforts to get free. The little grebes have been also hard put to it for a living, collecting together in any open water, either in the rivers or drains, and the snipe left us altogether, with the exception of a few frequenting the inland streams, wherever the springs afforded them a chance of food.

Of our usual winter migrants, fieldfares and redwings were extremely numerous, and so tamed by the severity of the season that they visited the gardens close to the city to feast on the few remaining berries. On the 17th of January, when the snow was some eighteen inches deep on the level, I counted upwards of twenty redwings, noisily stripping the rowans from the mountain ash, and, though close to the public road, apparently indifferent to the passers by, many of whom stopped to watch them. About this time bramblings and snow buntings were very plentiful, and a large bunch of greenfinches in the market, all male birds in brilliant plumage, proved, what I have more than once observed before, that with these birds, as with the chaffinch, a severe or long-continued frost brings a migratory arrival of *males* from more northern localities, the females and young of the year having preceded them at the usual period. Siskins have been also very numerous, and some forty or fifty were observed at Beswick during the first week in March, later than I ever observed them before. A few pied wagtails braved the sharpest frosts without seeking more southern quarters, and, as generally happens at such times, several beautiful specimens of the

gray wagtail, in brilliant plumage, were killed in the county, and one or two stonechats, shot with other small birds, showed the enduring powers of this sprightly species, which is by many supposed to leave us altogether in winter.

The following are amongst the most noteworthy occurrences of the last three months.

Sea Eagle.—One of these fine birds was seen at Caistor, near Yarmouth, during the hard frost in the first week of January, and I have but recently heard of another shot at Elveden, on the borders of the county, on the 24th of November: another was also killed near Holkham, about the 20th of February, which had frequented that neighbourhood for some days.

Shore Larks.—Since the 28th of November, when a pair of these birds, as recorded by me (S. S. 595), were shot at Beeston, two more, male and female, were killed on the beach at Yarmouth, and on the 5th of January two more, also male and female, were sent me from Salt-house. Of these the male was by far the most perfect in plumage, the gorget and black patch on the cheeks being nearly pure black, and the shoulders very vinous in tint. In the female the yellow was less vivid, and the black portions more suffused with brown; the stomachs contained only a few small black seeds and grit.

Wood Larks.—On the 16th of January, during the most severe weather, a pair of these larks were shot at Beeston, near Cromer, and were, I have no doubt, migratory arrivals, this species being confined almost entirely to the more western parts of the county in summer, and I believe not seen for some weeks during the depth of winter, even in these localities. Only the week before a correspondent in the 'Field' spoke of wood larks being shot and netted by hundreds on the south coast, about Brighton and other places, driven southward by the frost and snow.

Richard's Pipit.—The rarity of the season is unquestionably a specimen of this rare pipit, shot on the north side of Breydon water on the 27th of December, 1866. It is so seldom that an opportunity offers for examining this species in the flesh, and the measurements, as given by authors, vary so considerably, that I append those taken by myself and Mr. Gunn, who stuffed it:—

Length from tip of beak to end of tail	-	-	8½ inches.
Wing from carpal joint to end of longest quill	-	-	3½ "
Extent from tip to tip of wings	-	-	12½ "

Beak along the upper mandible	-	-	-	$\frac{5}{8}$ ths of an inch.
Tail	-	-	-	$3\frac{3}{4}$ inches.
Tarsi	-	-	-	$1\frac{1}{4}$ inch.
Middle toe and claw	-	-	-	$1\frac{1}{4}$ „
Hind claw only	-	-	-	$\frac{7}{8}$ ths of an inch.
Ditto with toe	-	-	-	$1\frac{3}{4}$ inch.

This bird on dissection proved to be a female, and the stomach contained fragments of small beetles and grit. This is the fourth specimen obtained in Norfolk, all of them having been procured in the neighbourhood of Yarmouth. The three previous examples were all shot on the Dean, between Yarmouth and Caistor; the first on the 22nd of November, 1841, the next in the following April, and the third on the 24th of April, 1843 (see Zool. 181).

Quail.—The appearance of these birds at odd times, when least expected, and above all in such a winter, is very puzzling; one was shot at Yarmouth during the first week in January. Mr. Gurney has also recorded (Zool. S. S. 607) the appearance of six quails, in good condition and quite fresh, in Leadenhall Market, on the 4th of January, all sent from the neighbourhood of Belfast.

HENRY STEVENSON.

Norwich, March 14, 1867.

Ornithological Notes from West Sussex.

By W. JEFFERY, jun., Esq.

(Continued from S. S. 599).

JANUARY, 1867.

Migrations.—Winter setting in in earnest, and so suddenly, too, at the commencement of the new year, caused a very hasty migration on the part of some of our feathered friends. On the morning of the 2nd of January, a fall of snow having hidden the ground during the previous night, a continuous stream of birds was observed passing overhead, consisting principally of sky larks, but also of blackbirds, fieldfares, missel thrushes, song thrushes, redwings and other small birds, occasionally intermixed with peewits and golden plovers. This flight of birds extended on either side for many miles, very probably the whole length of the county. It was noticed on the western border of the county, and as far eastward as Arundel; of the part east of this

I have no knowledge. It was observable principally from day-break up to noon, after which it appeared nearly to cease. The direction of migration was north to south. I have learned that a vast number of these birds congregated in a small island called Thorney Island, situate at the entrance of Chichester Harbour, and having rested there for a time rose high in the air, one immense cloud, and departed south over the water. From other sources I learn that a great flight of golden plover, peewit, and other species, was observed along the coast east of Selsey-Bill moving in a westerly direction. These birds having reached Selsey-Bill appeared to turn off over the water in a course due south, and were thence lost to sight. This was on the 2nd and 3rd of January, though the numbers were far greater on the former day. Being on the coast on the 19th I noticed a migration of small birds, in scattered parties, consisting principally of sky larks, all flying in a westerly direction over the entrance of Chichester Harbour, and thence over Hayling Island. Now this is west of Selsey-Bill; and, in the absence of observations from other parts, it is difficult to arrive at any conclusion as to the route or destination of these migrants. It is remarkable that the course taken is exactly opposite to that pursued by the bulk of our summer visitants in their autumnal migrations (see S. S. 89). If I remember rightly the wind was blowing from the north on the 2nd of January, but I have omitted to make any note on that point.

Wild Fowl.—All agree that, considering the severity of the frost and the continuance of wintry weather, wild fowl have been unusually scarce. A swan (*Cygnus ferus*) was shot by a Bosham gunner in that harbour on the 22nd, out of a flock of seven: this bird I saw next day. A second swan was shot the same day near Havant, I am told out of the same party: this is recorded in the 'Field' of January 26th. Very few brent geese have been killed, and no other species of goose that I am aware of. I have seen one pintail, a male, and two adult male goldeneyes. Females and young birds of this latter species are tolerably common, and are known by the name of "widgeon deevers" (divers). Widgeon (*Anas Penelope*) are the most numerous species, but they even have kept out at sea so much, the wind not being in the right quarter to drive them in, that comparatively few have been killed. Mr. Knox, in his Catalogue of Sussex Birds, considers the scaup duck "the most common species, after the widgeon, that is met with on this coast during the winter months." This, however, I cannot confirm. I have found both pochard and tufted duck far more

common; in fact as far as my experience goes the scaup is a scarce winter visitant: perhaps a severe winter is required to bring them. The pochard and tufted duck frequent fresh-water ponds. On the 13th I counted in Aldsworth pond, near Stanstead (West Sussex), about sixty pochards, as well as a pair or two of the tufted duck. I noticed that these latter, as well as some of the pochards, seemed to keep in pairs, male and female, feeding away from the rest. Mergansers (*M. serrator*) have been more numerous than for many years. They are principally females and young males, though I have seen one or two good plumaged males with the green head and perfect crest. One of these which I dissected had in its stomach the remains of an eel that might have measured ten or twelve inches in length when alive,—also a small crab and a few pebbles. In a local paper there is a note of some goosanders having been killed near Petworth.

Kestrel.—A female kestrel, shot on the 19th, had in its stomach the legs and other remains of two small birds, a lark and a linnet (?). Probably the cold weather rendered their capture more easy, and at the same time the regular prey of the kestrel, mice, scarcely ventured out of their holes, and even then perhaps in a tunnel of snow.

Bittern.—On the 23rd I saw a very fine specimen of the bittern, in the flesh, recently killed at Binstead, near Arundel.

Ring Dove.—January 23rd, and two or three days following, flocks of ring doves passed W. to E., in the morning from 8 o'clock till about 10.

W. JEFFERY, JUN.

Ratham, Chichester, February 9, 1867.

Ornithological Notes from the Isle of Wight.

By CAPTAIN HADFIELD.

(Continued from Zool. S. S. 447.)

SEPTEMBER, 1866.

Bluethroated Warbler.—Though authors have hesitated in admitting this species into our Fauna, others have been introduced without a shadow of claim to rank as British, the passenger pigeon for instance. Our list of birds truly requires docking, almost as much as the list of butterflies before it was taken in hand by Mr. Newman. But *Sylvia suecica* is, I think, now fairly entitled to rank as a British

species and a permanent resident, for not only has it been seen at Bonchurch, both summer and winter, but I have now to record its appearance at Shanklin, one having been observed on the 17th near the church: it allowed me to get within a few yards before taking wing and alighting on the trees skirting the rivulet which flows through the village to the Chine. I believe it to have been a male, but as no song was heard I could not be sure, for the old females, according to Temminck, have the breast blue. It is said to frequent low moist places skirting woods, and this I have found to be the case, the Bonchurch birds seldom wandering far from the brook or pond, where one may be generally met with, particularly towards nightfall, among the lower branches of the trees overhanging the stream. To one who has had opportunities of observing the bird and studying its habits, it seems most strange and unaccountable to find one writer calling it a redstart, and another a wagtail! It is most decidedly a robin, and but for the colour not one person in twenty would know the difference. Though a trifle smaller than the redbreast, it is of the same form, and resembles it in its habits, but is more restless and active, and oftener seen knee-deep in the stream splashing the water over-head till the plumage is saturated. Macgillivray says "its song is represented as lively and pleasantly modulated:" it is, to my ear, so like that of the robin that even now I find a difficulty in distinguishing it, nor have I heard of one person noticing the difference, or having an idea of its being other than a redbreast warbling overhead. This similarity in song, manner and habits, may prove its security, and save it from the fate of other rare migrants and wanderers.

Swallow.—September 19th. Seen in great numbers hawking over the Downs: they were mostly birds of the season, the tails being but slightly forked. 27th. Numbers of swallows and a few martins observed this morning about Shanklin and Sandown, but the gathering has been for some time noticed, and commenced about the usual period, namely, the beginning of September. The congregating, if not migrating, of the young birds before the old, I have already recorded and remarked on.

Pied Wagtail.—September 21st. A considerable flock observed at Bonchurch flying to the eastward.

Meadow Pipit.—A large flock seen to-day about the cliffs at Luccombe.

Wood Wren.—September 23rd. Several seen in the garden, mostly birds of the season; the plumage but faintly shaded with yellow.

Spotted Flycatcher.—September 23rd. One was seen to-day taking a bath in the road-side brook.

Woodcock.—September 25th. A woodcock was observed to alight by the brook near the cliffs at Steephill; on being flushed by the farmer's men it took a long flight in a northerly direction. It being rather early for the migratory flight, this bird may possibly have passed the summer with us, the woodcock occasionally breeding in the Island: I once saw a nest of young that had been taken, together with the old bird, in a wood near Yarmouth.

OCTOBER.

Green Linnet.—October 1st. A flock of green linnets observed this morning passing over the town in an easterly direction; the yellowness of the plumage leads me to believe they were all males. This species is not nearly so common here as in the north—Morayshire, for instance, where it was found most abundant and familiar.

Swallow, &c.—5th. Thermometer 48° at 9 A.M., having fallen 12° since yesterday. This sudden change of temperature is causing a general migratory move, thousands of swallows and martins, in about equal numbers, having been observed to-day, from an early hour, in rapid flight to the eastward, against the wind, which is bringing up both fog and rain. Their migratory flight is generally opposed to the wind, which is readily accounted for: having gradually approached the south coast during the latter days of September, they linger in our sheltered glades and vales, roosting on the ledges and in the clefts and crevices of the shelving inland cliffs, till change of temperature warns them to depart; they then have to make their way to the eastward against an adverse wind till reaching the point of departure—probably somewhere between Dunnose and Beachy Head. Accompanying the swallows, and intermixed with them, several species of small birds were noticed, but owing to the fog and rapidity of flight few were identified: a hawk, being among them, probably accelerated their flight. 6th. On my way to Niton, at eight o'clock A.M., I observed numbers of swallows and martins in circular flight above the cliffs: they had collected about a flock of sheep, which they were encircling in rapid flight, to hawk the flies. They were constantly passing and repassing, in the same order, and though the stragglers might here and there be seen darting forth, they would speedily rejoin the main body, and whirl away as before. The gathering extended the whole length of the Undercliff, and they were to be seen in countless numbers.

In my last year's notes these cliffs were referred to as the roosting resort of both swallow and martin during the autumn, when trees no longer afford sufficient shelter or cover: I also remarked on the Under-cliff being the general rendezvous of both species, and what has been lately observed confirms me in the opinion,—the young birds congregating, if not migrating, early in September; the adults towards the latter end of the month and beginning of October, when they take their final departure, always excepting late broods, some of which remain with us, as already recorded, till November, and occasionally till the first week in December. 10th. Scarcely a swallow or martin is to be seen, where such numbers were observed on the 6th. That the main body has now migrated there can be no doubt. Though the wind is east and the nights are cold the thermometer, on the 7th at 3 P.M., was 65°, but on the following day had fallen 10°. 31st. There are still some young swallows about, but I have seen no martins for a day or two.

Wild Fowl.—Wild ducks have been occasionally observed off the coast, the first flock seen the end of September, which, being unusually early, is thought to foretell a severe winter. Widgeon were also noticed about the same period, in the Brading Marshes.

Peregrine Falcon.—In the May notes I expressed a doubt as to the peregrine's breeding in the Culver Cliffs of late, but have since ascertained that a pair bred there this season; the nest, being placed beneath a bold jutting point, was inaccessible. Till within the last ten years a pair of peregrines bred in the cliffs near Niton, but they were cruelly shot.

Gray Phalarope.—Having heard, early in the month, that some strange birds like sandpipers had been shot in our Bay and forwarded to Newport for preservation, I wrote to inquire what they might be, but receiving no answer concluded they were some common *Tringa*, till undeceived by Police-Sergeant Rossiter, an intelligent observer, to whom I have more than once been indebted for information: he had seen specimens both here and in Newport, and that they were the gray phalarope there could be no longer a doubt. I have since heard from Mr. Smith that he has received nineteen phalaropes during September and the early part of October, but none were observed in this neighbourhood till the beginning of this month, and then but a small flock or two. Their appearance caused quite a sensation among the beach-men and boys, and two were stoned by the latter, so tame and fearless were they at first, and a few have been shot on the sands

within the harbour. When disturbed or driven from the shore they would alight on the water; but in the course of a few days became more wary, and were approached with difficulty. Macgillivray says they are of the size of the purple sandpiper; he might have added that they are alike in habits, the latter species being equally familiar: no *Tringa*, except those of North America, have I found so unwary. Two specimens only of the phalarope have come under my observation, and both had been skinned and set up. One is a full-sized adult, in winter plumage, as described by Temminck, the whole of the under parts from chin to vent white. The other is smaller, and evidently a bird of the season in a transition state of plumage: forehead white; crown of the head longitudinally streaked with black, white and reddish brown; neck white, but the lower part of a decided rufous tinge; breast and belly white, mottled with gray and clove-brown; bill dusky, one inch in length, narrow, but towards the point, which is decurved, expands to a two-fold width, having somewhat the appearance of a spoonbill. There is a white band over the eye to the nape, and a black one beneath; nape black; back of a bluish gray, but the feathers are streaked with black near the shafts. Primaries black, with white shafts; secondaries dusky, but very broadly margined with reddish brown, except the inner one, which has that part of a pure white. Tail rather long, *viz.* $2\frac{3}{4}$ inches; feathers acute, the centre ones, which are the longest, black, margined with reddish brown; the rest are of a dusky brown, except the exterior ones, which are light grayish brown, margined with white. Scapulars black, edged with reddish brown. Macgillivray says, "tail small;" Temminck, "queue longue," which it is, for a water bird's. Under tail-coverts very elongated, exceeding the tail by a quarter of an inch; they are white, except towards the points, which have a reddish tinge. The wings when closed slightly exceed the tail. Tarsus and toes of a light brown, slender; nails black, and very small; back toe elevated. Feet partly webbed, and toes lobed, as represented in Bewick's wood-cut; but Pennant's are of double the natural size. The birds were in poor condition. The phalarope being a rare species with us, I have described the plumage of the immature bird at some length.

NOVEMBER.

Land Rail.—8th. Sprung a land rail to-day when shooting in a turnip-field on Niton farm; the mildness of the season may account for its late stay.

Stonechat, &c.—A white stonechat, but with black quills and tail-feathers, was shot near Newport during the month of October; also a white robin: the latter is wholly of a dull white, and is evidently a bird of the season. I have also lately seen another pied blackbird, which is perhaps more subject to these variations of plumage than any other species. In a former note on a pied blackbird I expressed my belief that the white would gradually disappear, and subsequent observation verified my conjecture, confirming that of Buffon, too, with regard to white swallows; but I observe that a writer in the 'Zoologist' (S. S. 454) holds a contrary opinion, saying that "white feathers caused by disease will assume the true colours, but natural white feathers never change." Again, "real albinos invariably remain white." If so, they must be barren, or albino and pied individuals would be more numerous. Disease or wound may possibly turn black feathers white, as they cause the hair of animals to turn gray, but the plumage of the pied birds that have come under my observation could not have been thus transformed, as I have found it regularly and evenly marked; for instance, that of this stonechat is entirely white, with the exception of the quills and tail-feathers, which are black. The pied blackbird's wings were both similarly marked, and the tail-feathers equally spotted or barred. If albinos—the swallow, for instance—permanently retain the white colour, is it not strange that a close observer of the swallow tribe should never have seen but *one* white swallow in thirty years? As a rule, we shall I believe find that Nature resumes her course or sway; were it not so we should be meeting with monstrosities at every turn.

Redwing.—First seen on the 14th. On the 20th a very large flock was observed flying over the Downs in a north-westerly direction; they passed overhead, almost within gun-shot. A constant chattering or call-note was heard as they performed their aerial evolutions, at one time flying in open order, at another with closed ranks, and occasionally in divisions. When first seen they must have been some six or seven hundred feet above the level of the sea, but on reaching the Downs they suddenly dropped, as if about to alight.

Water Rail.—Having heard, early in the month, that a reeve had been killed by a cat on the cliffs, two miles from here, I walked over to see the bird, which proved to be a handsome male water rail, a rare species in the Undercliff.

Hoopoe.—A handsome bird of this species was killed at Blackgang, near Niton, early in October.

Swallow.—19th. When passing through the village of Carisbrooke to-day, I observed a swallow flying about the church tower, in which it doubtless roosts : though this is the last I have seen, two or three were observed in this neighbourhood on the 22nd. As to the supposed occurrence of the American barn swallow in England (Zool. S. S. 480), I cannot but think, with Mr. Newman, that it “requires further investigation,” but it need not entail the destruction of swallow-life anticipated, for though the American species, in form and flight, is very similar to our chimney swallow, it differs from it in size and colour. The former is smaller, and has the chin, neck and upper part of the breast of a deep bright chestnut, not “light chestnut,” as stated by Mr. Harting. Though Wilson says (vol. ii. page 48) that the belly is of a “light chestnut,” at page 43, we are told that it is of a “bright chestnut,” and the belly of a specimen before me, though somewhat faded, having been shot some years ago in Canada, is still of a brightish chestnut, but many shades lighter than the breast. Mr. Harting remarks, “I have several times seen a bird which I take to be the barn swallow of America, and which I believe is not uncommon in England.” I know the species well, but have never met with it in Great Britain, and I trust no ornithologist will, by a wholesale slaughter, attempt to procure a specimen. Independent of size, so different do they appear in colour when seen from beneath, the least observant could hardly fail to distinguish them at a moderate distance.

Gray Phalarope.—It would appear, from what I have lately heard, that an immense flight of these rare birds passed over the island during the night of the 16th of September, their cry or call-note having been heard by several of the inhabitants of Newport and the vicinity. Those subsequently found along our shores and on the inland pools and ponds were doubtless stragglers from the main body, too weak or exhausted to continue on their migratory course, for they were found easy of approach and were readily shot, and I am informed that they were both lean and empty.

Blackbreasted Tern.—A beautiful specimen of this elegant little species was shown me lately, having been shot late in the spring at Newtown. It measures about $9\frac{1}{4}$ inches in length, and the wing from flexure $8\frac{3}{4}$. The tail is but slightly forked, the feathers regularly and gradually increasing step by step. The head, neck and under parts black, as well as the breast.

Little Auk.—I have lately seen a well-prepared specimen of this

scarce, not to say rare, species: it was shot on our shore about two years since, by a tradesmen of the place.

DECEMBER.

Land Rail.—1st. When partridge-shooting to-day, on Niton farm, a land rail rose from the same field of turnips, on the hill-side, where one was found on the 8th of November. As frosty nights and cutting cold winds have not yet caused it to migrate, it may possibly remain through the winter. 29th. It was again found among the turnips. Though I have endeavoured to protect it, it was shot on the 31st by a brother-sportsman, who assures me that he has also met with it in the winter in Ireland.

Gray Phalarope.—4th. A few of these birds still linger on our shores, possibly too weak to resume their southern migration: two were observed this morning cowering under a rock, to shelter themselves from the storm of wind and rain.

Kittiwake.—10th. Five or six kittiwakes were shot off Shanklin, and many more were seen. It being so common a species with us during the winter, the remark of Macgillivray, "Kittiwakes arrive along our coasts in the end of April, and disappear in October," could have had no reference to the channel coast. Two black scoters were observed: though occasionally met with it is not a common species on this coast.

Common Gull.—Large flocks have been seen of late in different parts of the island, frequenting the ploughed lands: two shot on the 10th proved to be birds of the season, in the transition state of plumage, as described by Temminck, after the autumnal moult; their beaks were black.

Gannet.—First observed on this coast on the 13th of the month. On the 28th I saw a dozen or more fishing off Dunnose, their headlong plunges sending the spray some feet into the air. A black scoter, nearer shore, was taking its evening repast, but how different its manner of diving, seemingly sinking without effort and leaving no trace behind.

Redthroated Diver.—Though not seen in such numbers this winter as the last, they are generally to be met with from sunrise to about noon, in Sandown Bay, their usual resort, and I have heard of several being shot. They are principally killed for the sake of the skins. Guillemots and razorbills frequently seen in the bay.

Rook.—14th. Rooks were observed this morning in considerable

numbers in their nesting-trees, attracted no doubt by the mildness of the weather, the thermometer having been up to 53° during the month, and that too at an early hour.

Yellow Wagtail.—17th. This species has been again observed.

Jackdaw.—There is a pied jackdaw in the Land-slip Cliffs, a bird of the season I have reason to believe, or it must have been before observed. In having the secondary quills and coverts white it greatly resembles the magpie.

Fieldfare.—22nd. Though a flock was observed to-day, comparatively few have been seen this season, there having been no cold to drive them so far south. Owing to the absence of either snow or severe frost, thrushes have escaped the usual Christmas slaughter, and may be daily heard pouring forth their joyful notes. Our thrushes, owing to the late mild winters, are decidedly on the increase. The blackbird, though as prolific a species as the thrush, is not nearly so numerous; its black plumage, being more conspicuous, renders it more liable to attack from its deadly enemy the sparrow-hawk.

JANUARY, 1867.

Sky Lark.—On the 2nd and 3rd this neighbourhood was visited by great flights of larks, doubtless driven southward by the heavy fall of snow in the northern counties: even here the ground, for the most part, was covered with snow, and the thermometer, at 9 A.M. on the 3rd, was at 25° . Many of the birds were in a very exhausted state; one I observed in the garden feeding on the leaf of a broccoli; another was lying with outstretched wings on the ground. Intermixed with them were many titlarks.

Partridge.—Though a strong and hardy bird, the severe winter is beginning to tell on them; and they now feed chiefly, if not wholly, on the grass and turnip-leaves that are still above the snow. The gizzard of one shot on the 19th contained but a small quantity of coarse grass, but the cœca, &c., were crammed with a green pulpy mass, more or less digested, which I took to be turnip-leaf. No grain of any kind being now procurable necessitates their cramming themselves with less nutritious food. Though now wild and wary, they will at times allow a small dog to chase them in a turnip-field before taking wing. The plumage of a splendid old male lately shot was of a beautiful light gray on the throat, neck and upper part of the breast. Macgillivray says that the partridge lays from ten to fifteen eggs;

Temminck that they have from twelve to twenty, which I need hardly say is more correct. Numbers of small stones, both round and angular, were found in the gizzard, the largest about two-tenths of an inch in length. They vary too in colour, red, yellow, brown and white; some of the latter are transparent. I notice the colour, as Macgillivray tells us that they use "particles of *white quartz*."

Thrush, &c.—Christmas having passed I was inclined to hope that our thrushes had escaped, but with the new year their troubles began, and for a week or ten days a war of extermination was carried on, and so feeble had they become that they were readily shot and stoned by the least expert. Scores of men and boys turned out, and hundreds of thrushes and redwings were slaughtered. On the 17th I observed several endeavouring to obtain food on a sheltered bank, where the snow had been partially thawed; they had managed to make a hole in the ground, and the near report of a gun caused but a momentary cessation of their labours. Though haws and other berries were abundant, the trees and bushes had been stripped by the second week in January. But the song thrush, in hard weather, more generally seeks its food on the sea-cliffs and shore. Even the titlark, a more hardy bird, has been driven to search for food about our houses, and I saw one following a cart loaded with earth, on which it alighted, regardless of both horse and man.

Shoveller.—A female of this rare species was shot in Brading Harbour on the 21st, and sold as a widgeon. The pochard, too, in this neighbourhood goes by the name of widgeon. Never having met with the shoveller before, I referred both to Temminck and Macgillivray, but their descriptions of the female do not agree, nor do they exactly correspond with my specimen: the former saying "*La femelle a la tête d'un roux très clair*;" whereas my bird has the crown of the head black, the feathers margined with reddish-brown. Macgillivray says, "*On the middle of the breast inclining to white*;" but of this, I see no traces. The feathers of the breast are dark brown, broadly margined and tipped with light reddish brown, those of the belly marked the same, but some shades lighter; under tail-coverts, which are very elongated, dark brown, very broadly margined and tipped with red and yellowish white. Its general appearance and colour is not unlike that of the common wild duck. Though of full size it is very thin, and weighs but about twelve ounces. The stomach contained nothing but small pebbles, mostly rounded, apparently sea-shore shingle, the largest about three-tenths of an inch in length by two-tenths in

breadth. In the œsophagus were found some rather large pieces of the stem or root of sea-weed.

Stock Dove, &c.—24th. One seen, but the stock dove is not often observed in this neighbourhood. A wood pigeon shot to-day was very emaciated; the crop contained but a small quantity of turnip-leaf, and the gizzard was quite empty.

Tufted Duck.—21st. A female of this species was shot near Brading: it measures $15\frac{3}{4}$ inches in length, and 28 inches in extent of wings. Bill along the ridge one inch and six-tenths, and nine-tenths of an inch wide. Though full-grown it is a young bird, there being still traces of the white patch each side the bill, but no appearance whatever of the triangular white patch on the chin, spoken of by Macgillivray, but not mentioned by Temminck, whose description of the young Macgillivray quotes. As there is some appearance of crest, the bird must, according to Temminck, have undergone the first moult.

FEBRUARY.

Starling.—On the 13th found an immense flock of starlings in the marshes: on being disturbed they alighted in the trees and commenced their low monotonous song, which, though somewhat similar to the winter song of the redwing, is very unlike that of the song thrush, to which Macgillivray also compares it, though he says it “does not equal it.” Their merry chattering song—if song it may be called—is so like that of the cow bunting that I could have fancied myself in a Canadian wood. I consider Macgillivray wrong in saying that the flesh of the starling “is not much inferior to that of the thrush, and not at all inferior to the flesh of the wild pigeon,” but *chacun a son gout*. Wilson says of its cousin, the red-winged starling, “The flesh is little esteemed, being black, dry and tough;” if we add bitter the description would answer for that of our starling. Some years ago, in an unpublished note, I remarked on the flight of the starling being somewhat similar to that of the swallow and martin; I am pleased to find (Zool. S. S., 594) a correspondent indirectly corroborating my statement: he says, “I observed several starlings circling round and round, after the manner of house martins, and, like them too, occasionally rising a little in their flight. * * * When passing at a lower level I was convinced of their identity, although the total absence of martins at the time left no ground for doubt.” He remarks on the “exact similarity of their movements to those of house martins.” My object in pointing this out was to account for the supposed occurrence

of the swallow in winter. Though the starling is unlike both martin and swallow when handled, except in the shape of the wing when seen at a distance, and where but a momentary view is obtained, the resemblance is very striking.

Partridge.—On the 13th partridges were first observed in pairs. Last year they were not found paired till the 1st of March.

Rook.—Rooks had returned to their nesting-trees by the beginning of the month, about the usual time. A writer in the 'Field' says that the rook does not repair the old nest, but invariably rebuilds: he endeavours to prove this by saying that he has observed them removing the sticks of the old nest one by one. I have noticed the same thing, but the birds found so engaged have not been the rightful owners of the nest.

Redthroated Diver.—One was shot on the 20th. Though many have been observed, comparatively few have been killed this winter, the weather having proved too boisterous for boating on this bold coast.

MARCH.

Peewit.—2nd. An immense flight of peewits observed in the Sandown Marshes, which have been much flooded by the late rains: they have been doubtless driven southward by the severity of the weather. Even in a mild winter few remain in the north; for instance, in 1858-59 they were rarely met with in Morayshire.

Thrush.—19th. Heard of a nest being found containing eggs.

Redstart.—21st. A female redstart observed in the garden, though the ground was covered with snow, and the thermometer 33° only at 9 A.M.

Chiffchaff.—23rd. Two observed at Bonchurch.

Rook.—23rd. Some pairs, probably the younger birds, are later in building than the rest; for instance, a nest was begun to-day, for I saw the first stick laid most carefully, both birds being present on the occasion. 31st. The nest is apparently more than half finished.

Robin, &c.—24th. A robin's nest found. The wren has also commenced building.

Willow Wren.—31st. First seen.

HENRY HADFIELD.

Ventnor, Isle of Wight, April 11, 1867.

An Inquiry into the Nature and Properties of the Swallow-stone and Swallow's-herb. By JAMES EDMUND HARTING, Esq., F Z.S.

BETWEEN the so-called "swallow-stone" and the plant named "swallow's-herb" there is this remarkable connection, that both were considered to be sovereign remedies for all diseases of the eye. An inquiry into the history of each of these productions leads to some curious information.

Your correspondent Dr. Lebour informs us that an examination of some swallow-stones showed them to be the hard polished calcareous opercula of some species of Turbo, but that their worn state precluded an identification of the species. He adds that their peculiar shape, one side being flat and the other convex, admits of their being pushed under the eyelid, across the eyeball, and thus they remove any eyelash or other foreign substance which may have got in the eye; but that further than this they have no curing power.

The popular belief on this subject, current amongst the peasants in Brittany, is no doubt of some antiquity, and the allusion which Longfellow has made to it in his beautiful poem of 'Evangeline' would seem to confirm this impression, inasmuch as we may assume that the legend found its way into Acadia through the French colonists, who were the first to settle there. There is this noticeable difference, however, between the current opinion in Brittany and the popular belief in Acadie, as expressed by Longfellow, namely, that in the former case it is the *finder* of the stone in the swallow's nest who is benefited; in the latter it is the sight of the "*fledglings*" that is thereby restored.

On referring to ancient authors we are struck with a remark which is variously expressed, to the effect that the swallow, for a similar purpose, makes use of a plant named Chelidonium.

This plant is the well-known Celandine (*Chelidonium majus*).^{*} It belongs to the Papaveraceæ, or poppies, and may be found growing, in waste places, to the height of about two feet. It is brittle, slightly hairy and full of a yellow fœtid juice, and bears small yellow flowers in long-stalked umbels.

The name Chelidonium is undoubtedly derived from the Greek *χελιδων*, a swallow, but the reason for its being thus named is not so obvious. Some authors suggest that it was so called on account of its

* Hooker and Arnott's 'British Flora,' p. 18.

flowering about the time of the arrival of the swallow, while others assert that it derives its appellation from being the plant medicinally made use of by that bird.

The belief that animals and birds possess a knowledge of certain plants which will cure a disease, or benefit them in some way, is very ancient, and this particular plant is alluded to by old authors as being especially selected for the purpose. Pliny observes (Hist. Nat. fol. 1530, p. 461, xv.) "*Animalia quoque invenire herbas, inprimisque chelidonium. Hac enim hirundines oculis pullorum in nido restituunt visum, ut quidam volunt, etiam erutis oculis*" (!) And the same author further remarks, "*Chelidonium visui saluberrimam hirundines monstravere vexatis pullorum oculis illa medentes.*"

Gerard, referring to this plant, in his 'Herball, or Generall Historie of Plantes' (1597), observes:—"It is called Celandine, not because it then first springeth at the comming in of the swallowes, or dieth when they goe away: for as we haue saide, it may be founde all the yeere; but because some hold opinion that with this herbe the dams restore sight to their young ones when their eies be out, the which things are vaine and false: for Cornelius Celsus in his sixt booke doth witnesse that when the sight of the eies of diuers yoong birdes be put foorth by some outward meanes, it will after a time be restored of itselfe, and soonest of all the sight of the swallow, whereupon (as the same saith) that the tale or fable grew, how, thorow an herbe the dams restore that thing, which healeth of itselfe: the very same doth Aristotle alleadge in the sixt book of the historie of liuing creatures: the eies of young swallowes, saith he, that are not fledge, if a man do pricke them out, do grow againe, and afterwards do perfectly recouer their sight." Subsequently, when speaking of the "virtues" of the plant, the sage Gerard continues: "The iuice of the herbe is good to sharpen the sight, for it cleanseth and consumeth awaie slimie things that cleaue about the ball of the eie, and hinder the sight." The root was considered good for yellow jaundice, and also (being chewed) for tooth-ache. Gerard adds "The roote cut in small peeces is good to be giuen vnto hawkes against sundrie diseases:" and Turbervile, in his 'Booke of Falconrie' (1611), treats of a cure for "a blow giuen to the eye, or of some other mischance," as follows: "Sometimes the eyes of hawkes are hurt by some mishappe, some stripe, or otherwise as I said afore. Against such unlooked for mischances, Master Malopin, in his boke of the Prince, willeth to take the iuice of Celondine, otherwise Arondell, or Swallowes hearbe, and to convey it into the eye. And if

it bee not to be had greene, to take it drie, and to beat it into powder, and to blow it into her eye with a quill, and this shall recure the hawke."

A marginal note to this paragraph informs us that "Arondell"* in French is "Hirundo," a swallow, otherwise called "Chelidon."

Parkinson, in his 'Theatrum Botanicum' (1640), alludes to two species of Celandine, *C. major* and *C. minor*, and says:—"Some call them *Chelidonia major* and *minor*, and tooke the name, as Dioscorides saith, because it springeth when swallowes come in; and withered at their going away (which is true in neither, the greater whereof Dioscorides chiefly speaketh, being greene both winter and sommer; and the lesser springeth before swallowes come in, and is gone and withered long before their departure). Dioscorides likewise, and Pliny also, say it tooke that name from swallowes that cured their young ones' eyes, that were hurt, with bringing this herbe and putting it to them: but Aristotle, and Celsus from him, doe shew that the young ones of partridges, doves, swallowes, &c., will recover their sight, (being hurt) of themselves in time, without anything applyed unto them, and therefore Celsus accounteth this saying but a fable."

It is curious to observe how universally this plant appears to be associated with the swallow. We are told that *Chelidonium major* is "*Celidonia maggiore*" of the Italians, "*Yerva de las golondrinhas*" of the Spaniards, "*Chelidoine Felongue*" and "*Esclaire*" of the French, and "*Schwalbenkraut*" of the Germans; while we, in English, call it "*Celandine*," "*Swallow's herb*" and "*Swallow-wort*."

To revert to the "*Swallow-stone*." The connection between the herb and stone is this, that both were brought to the nest by the bird, and both were deemed good for the eyes.

The above-mentioned authors make no mention of the "stone;" that is to say, no mention of it with special reference to its curing diseases of the eye, nor indeed to its being brought to the nest by the parent bird.† A friend has suggested that the tradition may have originated with the Chinese, to whom the edible swallows nests have

* "Arondell," no doubt the old French, or a corruption of "Hirondelle."

† I have not overlooked the following passage in Pliny, but it is not quite to the point:—"Avibus venter carnosus callosusque. In ventre hirundinum pullis *lapilli* candido aut rubenti colore, qui chelidonii vocantur, magicis narrati artibus reperiuntur." Elsewhere the same author goes further than would be expected, and informs us that swallowes themselves may be used medicinally:—"Auxiliatur contra serpentes et columbarum caro recem conceпта, et hirundinum."

been so long known, and to whom credit is now given for having been, centuries ago, acquainted with inventions which, until recently, were considered to be modern. It may be so; but, not being acquainted with Chinese, I am unable to say whether there is, in that language, an equivalent for “swallow-stone,” or “swallow’s herb,” or whether ancient Chinese authors in any way throw light upon the subject.

J. E. HARTING.

Kingsbury, Middlesex.
April, 1867.

NOTICES OF NEW BOOKS.

‘*The Birds of Norfolk, with Remarks on their Habits, Migration and Local Distribution.*’ By HENRY STEVENSON, F.L.S. In Two Volumes. Vol. 1. London: Van Voorst, Paternoster Row. Norwich: Matchett and Stevenson. 1866. 446 pp. Demy 8vo. 2 litho. plates, drawn by Wolf. Price ten shillings and sixpence.

THERE are three reasons why this book should be especially acceptable to the readers of the ‘Zoologist,’ as the acknowledged organ of British ornithologists: 1. In the pages of that journal appeared the first really complete and digested list of the Birds of Norfolk; so that the subject seems peculiarly its own. 2. Mr. Stevenson, with unwearying assiduity, has continued the theme in these pages up to the present time. 3. The work is one of those masterly contributions to British Ornithology which it is the peculiar province of the ‘Zoologist’ to introduce to every one of its readers as an essential addition to his library.

It is impossible to open the volume at any page without being made aware how extensive have been the author’s researches into the labours of his predecessors, and how admirably he has filled in such *lacunæ* as necessarily occur, with observations of his own. But a higher meed of praise than this is due to Mr. Stevenson for the candour and openness with which, in every instance, he has acknowledged the sources whence he has obtained information. I well recollect that when I first published my ‘British Ferns’ an eminent botanist, alluding to the constantly recurring acknowledgment of the sources of information, told me “he thought such excessive conscientiousness was quite superfluous:” this opinion is very common, and some conceal their conscientiousness so entirely that one fails to discover its

existence, and perhaps may rush to the conclusion that it is totally absent. Mr. Stevenson is almost the only writer who carries this conscientiousness to a sufficient extent; indeed to an extent thoroughly and scrupulously honest, and with this alone can I ever feel perfectly satisfied. Wherever we find in a book continued proofs of this honesty of purpose it seems impossible to avoid forming a favourable impression both of the author and of his labours.

It seems unnecessary here to say anything of the physical characters and agricultural changes so constantly going on in Norfolk, since these have been so admirably treated in these pages by Messrs. Gurney and Fisher; sufficient to say that the area of fen land is constantly on the decrease, owing to the extensive system of drainage now carried on, and for the same reason the area of arable land and fir-plantation is constantly on the increase. From the same causes the number of aquatic and wading birds are decreasing, while arboreal species are slightly on the increase. We have an apt illustration of this in the longeared owl.

Longeared Owl.—"The longeared owl is another instance of the changes which have taken place in a few years, from local causes, in the habits of some of our feathered visitants. Whilst drainage and the plough are fast driving the harriers and other marsh breeders from their accustomed haunts, the rapid increase in our fir-plantations, especially near the coast, affords such inducements to this species to remain and breed with us, that the autumn visitant of a few years since, only occasionally known to stay through the summer, may now be more properly termed a numerous resident, receiving additions to its numbers in autumn. The Rev. R. Lubbock, writing of this owl some twenty years ago, though mentioning the fact of its sometimes remaining to breed, says, 'The bird may be considered altogether rare,' which statement is in strange contrast to the number of specimens now, at all seasons of the year, brought to be preserved in this city (particularly the case in 1854), and but for the thoughtless persecution of keepers and collectors, a pair or more might be found located in almost any of our woods or plantations of sufficient extent. In the spring of 1856 no less than ten young birds were taken in a plantation at Sprowston, near Norwich, and several old ones were shot; yet since that date a few pairs have still continued to frequent the same locality, and they are more particularly plentiful in the extensive fir-coverts in the vicinity of our east coast. In the western and south-western parts of the county they are also very plentiful."—p. 44.

The occurrence of a second specimen of *Strix asio* is too interesting to be omitted here: the only previous notice of the species will be found in the 'Naturalist' for August, 1855: it is cited in the preface to Mr. Yarrell's third edition, at p. vi., and again in my edition of Montagu, at p. 221:—

Scops asio.—"Mr. Gurney informs me that some years back he purchased from the late Mr. Thurtell, then a nurseryman at Eaton (when selling off his collection of Norfolk birds), an adult specimen of this rare owl, said to have been killed near Yarmouth, but till then supposed to be only an European scops owl."—p. 44.

The barn owl, that true friend of the farmer and gardener, comes in for a good word at the hands of our observant author:—

Barn Owl.—"What a pleasure it is in an autumnal evening, when returning at sunset after a long day's sport, to watch this owl on noiseless wings flitting about the homestead. Now skimming along the fences in search of prey, now rapidly turning the corner of the stack-yard, it suddenly seizes upon some luckless victim, and is off in an instant to its roost in the tower, or disappears for a time through the little opening in the gable end of the barn. Its wild screech uttered in the 'stilly night' is certainly somewhat startling to the nerves, and, heard amidst the ruins of some crumbling cloisters, may well scare the listener, unaccustomed to the sound; yet scarcely would one wish the rustic mind altogether disabused of its old superstitions, if the association of this owl with 'uncanny things' might aid in preserving it from unreasoning persecution. I would rather that every thoughtless clod, who compassed the death of either old or young, might share the horrors of that luckless wight who, having killed the church owl as it flitted past him, ran shrieking home, and, with his hair on end, confessed his awful crime, 'I've been and shot a cherubim.'"—p. 52.

The theory I have propounded elsewhere, of the existence of pairs of species scarcely distinguishable from each other, receives some little illustration from Mr. Stevenson's very interesting notes on the common dipper and bluethroated warbler, species which have long been subjects of discussion among technical ornithologists: these notes will I think be read with pleasure and profit, but I do not presume to offer any opinion on points that have proved so difficult of solution.

Common Dipper.—"Whether or not the blackbreasted water ouzel, the *Cinclus melanogaster* of Gould's 'Birds of Europe,' is specifically distinct from the ordinary British form, with a chestnut band across the abdomen, or merely a climatal variety, undoubtedly our Norfolk specimens belong to the former type. I have at different times examined six or seven examples, all killed in this county, which, with one exception to be hereafter mentioned, exhibited no trace of chestnut on the under parts, but were identical with a Lapland specimen in the Norwich Museum (No. 40, *b*), collected in that country by the late Mr. Wolley. We may naturally suppose, therefore, from this circumstance, and the season at which our few Norfolk specimens invariably appear, that they are chance stragglers from the Scandinavian peninsula; and that this opinion is entertained also by Mr. Gould, to whom I communicated the above particulars for his new work on 'The Birds of Great Britain,' is shown by his concluding remark, 'I can account for their occurrence in no other way.'"—p. 69.

Bluethroated Warbler.—"It is particularly worthy of note that both these birds, as well as the first recorded British specimen now in the Museum at Newcastle-on-Tyne, belong to the form with the red spot prevailing in Scandinavia, and not to the white-spotted form which yearly visits Germany and Holland. Of these two the Lowestoft specimen is the most perfect in plumage, both as to the extent and vividness of the blue, and the purity of the red spot, the same parts in the Yarmouth bird being less clearly defined. How far the white or red spots may be considered as characteristics of two distinct species it is difficult to say; it will suffice, however, for my present purpose, to have shown that the only two examples met with on our eastern coast are, like the dippers before alluded to, identical with Lapland specimens, presented to the Norwich Museum by the late Mr. Wolley, and are represented by the two figures in Dr. Bree's 'Birds of Europe' (vol. ii. p. 11). Having adopted the nomenclature of Yarrell in this work, I have retained his scientific designation of *Phœnicura suecica*, the specific term 'suecica' being perfectly applicable in the present instance, although not correctly so to the white-spotted form, figured by that author in his 'British Birds.' There is no doubt that the red-spotted form is the true *Motacilla suecica* of Linnæus, subsequently described by Pallas as *M. cærulecula*, and by Schlegel as *Lusciola cyanecula orientalis*; whilst the white-spotted form, which does not seem to extend its range so far

northward, is the *S. cyanecula* of Meyer and Schintz, improperly called *Cyanecula suecica* by Brehm and others. Another, and apparently less common form of bluethroated warbler, having the entire throat blue, without either a red or a white spot, has received the name of *Sylvia Wolfii*. Mr. Newcome's collection at Feltwell, contains an example of this form which was killed in Holland."—p. 96.

The nesting of the ring ouzel in our eastern counties has been frequently doubted, and it cannot be denied that the extreme similarity—might I not say the exact similarity—of the eggs exhibited as ring ouzel's, to those of the blackbird, may be accepted as an apology sufficient for any amount of scepticism. Still I hold it unwise to volunteer an opinion, seeing no argument of mine can alter facts, and that facts must reveal themselves in course of time, if patiently sought for. In the mean time let us hear Mr. Stevenson on the subject, but constantly bearing in mind the fact that he gives his authorities without venturing to endorse their assertions.

Ring Ouzel.—"The ring ouzel has been known occasionally to nest in this county, and although probably overlooked, from its general resemblance to the common blackbird and the similarity in the eggs of the two species, it is not improbable that a few pairs may do so nearly every year in favourable districts, and I have reason to believe that such is the case at Holkham. Mr. Spalding, of Westleton, who has paid much attention to their habits in Suffolk, assures me that he has himself taken several nests and eggs in his neighbourhood, where they remain till late in May, should the winds be contrary, and then frequently nest and lay; but he has never known the young to be hatched, as the old birds appear at once with the first favourable wind for more northern localities. They build on the stubs in low damp cars, both at Westleton and Yoxford, where the birds have been watched, and would appear to remain in all cases at no great distance from the coast. About thirty years ago a nest of this species, with the old bird sitting upon it, was found by Mr. Rising in his garden at Horsey."—p. 85.

I have been much interested in the following observations on the gold-crest, a bird I have been so accustomed to see in pairs, or at most in threes, that so large a congregation seems almost miraculous: on this and all other questions brought before the readers of this notice I shall feel extremely obliged for the observations of any readers

whose experience is more extended than my own. Although no one for a moment will doubt the facts recorded by Mr. Stevenson from personal observation, still it is peculiarly gratifying to meet with collateral and independent evidence.

Goldencrested Wren.—"As I was walking to Hemsby, about 7.30, when it was just daylight, about half a mile out of Yarmouth, on the Caister road, my attention was attracted to a small bush overhanging the marsh dyke which borders the pathway, by the continuous twittering of a small bird. On looking closely I found the bush, small as it was, literally covered with goldencrested wrens. There was hardly an inch of twig that had not a bird on it, and even from my rough attempt at calculation at the time, I feel sure there were at least two or three hundred. Most of them were either females or young birds, having a lemon-coloured crest; they were perfectly tame, and although I sat down on the other side of the ditch, within six feet, and watched them for some time, they did not attempt to fly away, but one or more would occasionally rise off its perch, and hover like a butterfly, and settle again in some other position. I went the next morning to look for them, but they were all gone. The wind had been easterly, with much fog."—p. 136.

In this country we know little or nothing of the waxwing in confinement, and are always glad to learn any particulars of so rare a captive. Mr. Stevenson was fortunate in purchasing a pair from Mr. Jamrach, the animal dealer in Ratcliff Highway. The female died apparently in moult, but the male, with great attention to cleanliness and diet, assumed his perfect plumage in January, and was as handsome as any wild specimen Mr. Stevenson has ever seen. As so little is known of the waxwing as a cage bird, it cannot be otherwise than acceptable to know the treatment which proved so successful, as well as the habits of a bird previously unknown as a captive.

Waxwing.—"I found bread and egg, with a little hemp seed, the best diet, with berries such as privet and ivy occasionally; and latterly I obtained some of the preserved cranberries, which at that time were much sold by the grocers. They also ate a good deal of old dried mortar, and swallowed a quantity of small stones, having, as I afterwards found, a true and very firm gizzard. Their note is a clear silvery whistle, more subdued in tone than might have been imagined from a bird of its size, and this when uttered of an evening, with

various modulations, after the lamp was lighted in the room where they were kept, was excessively sweet and pleasing. In their actions they somewhat reminded me of starlings playfully snapping at one another with their beaks, as they sat side by side, and occasionally in the most affectionate manner taking food from one another's mouths. The male when thus excited with play was a very striking object, his whole figure full of life and vigour, being drawn up as if standing on tiptoe, with the crest elevated and curving forwards. At times he would amuse as well as exercise himself by hopping sideways on his perch in a very droll manner, and when alarmed by a visitor, or listening to any strange sound his expression of curiosity (the head and neck being stretched out to the fullest extent), mixed with a queer pert manner, was extremely comic."—p. 159.

One other extract, and a very brief one, and I commit the Birds of Norfolk to my readers, feeling thoroughly assured that they will enjoy it as much as I have done :—

Yellowhammer.—"As a cage-bird the yellowhammer, though looking a giant amongst the smaller finches, is exceedingly gentle in manner, maintaining his own rights with a quiet dignity that brooks no insult, though he never interferes with others. In fact, a feathered gentleman, and graceful in action, he floats, rather than flies, from one perch to another, or amuses himself by repeatedly springing into the air, and with a rapid turn of the wings alighting again on the same spot."—p. 197.

I find I have omitted to mention that this is a first volume only : it ends with the Californian quail, the arrangement being that of Mr. Yarrell, so that all the wading and swimming birds, tribes in which Norfolk is peculiarly rich, have yet to be noticed.

EDWARD NEWMAN.

Cat and Squirrels.—On one of the early days of April, this year, I was asked by a bird-fancier to come into a little room in his house in Eton, and see a "novelty," as he called it. This novelty was quite new to me, for it consisted of an old cat bringing up a "happy family" of her own single kitten and four young squirrels. The man told me that the cat saved him much time and trouble by taking the young squirrels off his hands; and he also told me that she had done the same for him last year. It was very curious to observe how carefully she avoided stepping upon them. She evidently liked them as well as her own kitten, and was a very affectionate foster-mother.

They were very young when taken from the nest, and would probably have died unless the old cat had taken pity upon them.—*A. Clark-Kennedy.*

Greenland Seal at Ryde.—Will Captain Hadfield kindly give us further particulars as to the specimen of the Greenland seal said to have been killed near Ryde (Zool. S. S. 700). I have myself no doubt but that it may really be that animal, but the *authentic* occurrences of this species on our shores are so few that it would be a pity should the identification of this example rest on a birdstuffer's examination of the tusks. I trust therefore that either Captain Hadfield himself, or some other equally competent observer, will examine and report on the specimen.—*Edward R. Alston*; 205, *Bath Street, Glasgow.*

[I cordially concur in this request: I was rather surprised that Captain Hadfield should be content to allow so important a statement to rest on such really slender evidence.—*Edward Newman.*]

Dates of Oviposition this Year.—

Song Thrush.—First nest with eggs on the 3rd of April.

Blackbird.—First eggs on the 4th of April.

Missel Thrush.—First nest with four eggs on the 9th of April.

Rook.—First eggs on the 30th of March.

Lapwing.—The lapwing began to lay about the 6th of April in this neighbourhood. Yesterday the gamekeeper found a nest containing two full-sized eggs and one miniature one shaped and coloured like the common varieties of plovers' eggs, but not larger than the egg of the water ouzel.—*H. W. Feilden*; *Feniscowles, Blackburn*, April 15, 1867.

Arrival of Summer Visitants in County Wicklow.—It may interest some readers of the 'Zoologist' to know that when crossing a field near here on the 25th of March I observed two birds of the swallow tribe flying about: they did not approach very near me, nor did they stay longer than one minute, but judging from their appearance and flight I think they were the common swallow. Is this not very early for them to arrive? There was snow on the mountains at the time: the wind was blowing hard from S.E. The chiffchaff arrived on the 25th of March also, and on the 1st of April they were very numerous in our woods. The wheatear I saw for the first time yesterday.—*R. M. Barrington*; *Fassaroe, Bray, County Wicklow*, April 3, 1867. PS. I heard a fieldfare to-day.—*R. M. B.*

Blue and White Varieties of British Birds' Eggs.—In reply to Mr. Clark-Kennedy's query in the April number of the 'Zoologist' (S. S. 706) respecting white varieties of the robin's eggs, I beg to say they are not of uncommon occurrence in this neighbourhood. I have met with several nests containing examples of this variety during the last few years, and have some now in my collection. I have also entirely white eggs of the following birds:—Sparrowhawk, common buzzard, whitethroat, chiffchaff, coal tit, common bunting, blackheaded bunting, yellowhammer, starling, wren and red-legged partridge. I have pale blue varieties of the missel thrush, thrush, blackbird, chaffinch, common guillemot and blackheaded gull: the eggs of the missel thrush and blackbird are slightly blotched with pale reddish brown; the others are entirely clear. I have also some very curious and uncommon varieties of the blackheaded bunting, whitethroat, chaffinch, ptarmigan, ring dotterel, waterhen, common tern, blackheaded

gull, &c.: all of which, with the exception of the common buzzard and ptarmigan, were taken in Norfolk.—*T. E. Gunn*; 3, *West Pottergate, Norwich*.

What gives a Bird a claim to be classed as British?—I am anxious to meet with some definite description of what constitutes the above. In the 'Dictionary' the brown snipe appears as a British bird: Dr. Bree, in his Appendix to the 'Birds of Europe,' says that bird has no claim to be considered a British bird. Morris figures and describes Sabine's snipe. Is it a distinct species? The 'Dictionary' describes it minutely, and then qualifies that description with the suggestion that it is only a dark coloured common snipe; so I infer does Dr. Bree, and what says Yarrell on that point? Take again Steller's western duck and the buffleheaded duck. The list at the end of the 'Dictionary' gives two instances of the former being captured in Britain, and one of the latter. Why then should the former (*vide* Dr. Bree and others) rank as a British bird, and why not the latter? Again, Mr. Gould, in his 'Birds of Britain,' figures the American whitewinged crossbill. The talented editor of the 'Ibis' differs with him on that point (as usual, doctors disagree). Again, once more, why is Bartram's sandpiper excluded from the list of British birds? These, Mr. Editor, are a few queries I would ask respecting British birds; but may I be fortunate enough to elicit some response?—*B. T. S.*

Ring Ouzel in Middlesex in March.—On the 23rd of March, I shot a female ring ouzel near some gravel-pits by the Kingsbury Reservoir. My attention was first attracted by the conspicuous white gorget of the male, but he was too shy to allow of my approaching within gunshot; in fact, it was only by chance that I managed to procure the female. This pair seemed the only individuals in the locality, and on visiting the spot a few days afterwards the male seemed to have departed. Even at a distance their habits would make it impossible to mistake them for blackbirds: when disturbed upon the ground they betook themselves to the tops of the tall trees, instead of hiding in some thick hedge.—*Charles B. Wharton*; *Willesden, Middlesex, March, 1867*.

Nesting of the Dipper.—Not a hundred yards from our front door, under the arch of a bridge, over which the high road passes, a pair of water ouzels are now nesting; under this same arch is attached transversely a light iron bridge which connects two parts of the pleasure-grounds. This iron bridge is frequently passed over during the day by the gardeners and members of the family, yet in spite of this annoyance the ouzels have built their nest against the arch, about two feet below the iron bridge. They commenced building about the 1st of March: the very cold weather that commenced about the 6th stopped further proceedings, but building was resumed on the 24th, the very day a thaw commenced: by the 31st the outside of the nest was completed, and on the 7th of April there was one egg in the nest: I have not examined it since. I noticed very particularly each day the progress made on this nest: the birds commenced building from the bottom, and then piled a ring of moss, in the shape of the letter O, against the wall: the birds whilst building laid moss alternately on one side and the other, but from similarity of plumage I could not tell whether each bird had a special side to work on or not: by the time the ring of moss was completed the base of the nest protruded four or five inches, and at the top about one inch from the wall, the thickness of the walls of the nest also tapering off from bottom to top. When the ring was completed, as I have described, the ouzels changed their tactics, and commenced building down from the top until the whole of the nest was arched

over, the entrance being placed over the stream more at the base of the nest than the side. It is wonderful how so large and heavy a structure as this clings to the wall, for where the nest is placed there is only a slight convexity in the face of the stone, hardly appreciable to the eye when the nest is away. Two more pairs of water ouzels are nesting half a mile up this stream, where it passes through a tunnel under the Leeds and Liverpool Canal: from the inside of this tunnel on both sides large blocks of stone protrude from the walls; on these the ouzels build, and the same spots are selected year after year. The shape of the nests in these instances are suited to the position: being placed on a firm flat surface, the birds departed from the shape described in the first instance; instead of building their first round of moss in the shape of the letter O, they built in the form of the letter \sqcap inverted, the nests when completed being somewhat in the shape of bee-hives. It is interesting to note these little modifications in the construction of "homes without hands" by birds of the same species. Mr. Hewitson says these birds commence nesting early in April, but here is an instance of their beginning a full month earlier.—*H. W. Feilden.*

Wood Lark in West Sussex.—Lord Clifton asks (S.S. 705) for information respecting the wood lark in the southern counties. My own observations tend to show that it is a scarce bird in this part of Sussex; indeed it is only within the last few years that I have noticed it here in the summer. It is not found in the open part of the country, but affects the sheltered and wooded valleys in some of the higher grounds near Goodwood, for instance: it is also found in some parts of the Weald, but is nowhere numerous. I am inclined to refer the notes I heard in January, 1865 (Zool. 9498) to this species. I was at that time unacquainted with the note of the wood lark. Subjoined is an extract from the 'Field' of January 12th; it is from the pen of Mr. G. Dawson Rowley, of Brighton, and may interest Lord Clifton and perhaps other of your readers, showing that wood larks met with no better reception at Brighton than the phalaropes at Eastbourne, &c.:—"The late frost has made sad havoc among the birds, particularly the *Alaudidæ*. These appear to have been driven south by the snow till they reached the sea, along the coast of which they wandered westward in search of unattainable safety. On Thursday last, round Brighton, wood larks (*Alauda arborea*) suddenly appeared in every direction, and suffered accordingly by net and gun. One person is said to have shot a hundred of these poor little songsters, not knowing what they were; another has forty alive. These are only two instances out of many. Between Brighton and Rottingdean, I am told, at least one hundred and fifty clappers were at work on that day, and the guns on the Downs sounded like a review. Bunches of sky larks were offered for sale in every street, *usque ad nauseam*. From all this I fear our copses next spring will be sadly silent, for the plaintive note of the wood lark has been hushed by death."—*W. Jeffery, jun.; Ratham, Chichester, April 4, 1867.*

The Bunting a Bird of Shakespeare.—I have read with great pleasure Mr. Harting's very interesting remarks on the "Birds of Shakespeare," and in consequence of a passage I lately came across I would suggest that another species, the bunting, may be added to the list of British birds mentioned by the poet (Zool. S. S. 354). The passage I allude to is from 'All's Well that Ends Well,' Act ii. Scene 5, where Lafen, on being assured that Parolles really is a good soldier, exclaims, "Then my dial goes not true; I took this lark for a bunting."—*James Shorto, jun.; Dorchester, April 8, 1867.*

Magpie with a Yellow Beak.—Allow me to remind the readers of the 'Zoologist' that in California there is a magpie (*Pica Nuttalli*, Audubon) which corresponds remarkably with the bird seen in Scotland by your correspondent, Mr. Harvie Brown (Zool. S. S. 706). Prof. Baird, in his 'Birds of North America' (p. 578), says of it:—"This species, in every appreciable respect, is precisely similar to the common magpie (*P. hudsonica*, Bonaparte), with the exception of the bill and naked skin around and behind the eye, which are bright yellow. Sometimes this is rendered darker from the fact that the transparency of the horny covering of the bill allows the bone to be seen through it. The size is rather smaller, but this may be the result of its more southern locality. It is a very serious question, whether the bird is anything more than a permanently yellow-billed variety of the common bird. It is well known that in *Psilorhinus morio*, and other garruline birds, the bill may be either yellow or black, almost in the same brood of young; and if magpies with these differences were habitually associated throughout the continent, there would probably be no hesitation in combining them. The restriction of the yellow-billed magpie to the coast region of California, where it is unmixed with black-billed individuals, except in the northern portion of the State, is an interesting fact." In plate xxvi. of the 'Atlas' to the same work a coloured figure of the head of *Pica Nuttalli* is given, together with outline sketches of the wing, tail and foot; but (in my copy at least) there is no appearance of the bare yellow skin round the eye which is mentioned in the text. If I am not mistaken the "golden" bill of this magpie used to be the subject of various pleasantries, when California was first overrun by eager seekers of the precious metal for which it has become so famous.—*Alfred Newton; Magdalene College, Cambridge, April 10, 1867.*

[Several other correspondents have communicated with me to the same purport, leaving no doubt on my mind that the unknown visitor was *Pica Nuttalli*.—*Edward Newman.*]

Food of Great Spotted Woodpecker.—In dissecting the stomach of a male specimen of the great spotted woodpecker, killed on the 2nd of April, near Rendlesham, in Suffolk, I found it contained as many as ten larvæ of *Cossus ligniperda* of the first year's growth, the skin of a larva of *Zeuzera Æsculi*, and four or five small white grubs, apparently of some species of beetle.—*T. E. Gunn.*

Early Nesting of the Kingfisher.—Mr. Hewitson's note on the breeding of the kingfisher at Oatlands (Zool. S. S. 707) reminds me that there is a very interesting letter on the same subject in the 'Field' of the 3rd of November, 1866, from the pen of Mr. Rowley. There is more than a month's difference between the dates mentioned by Mr. Rowley and Mr. Hewitson for the kingfisher commencing nidification. Two or three pairs of kingfishers generally breed in our neighbourhood, but they are not at all constant to their old nesting-places: I have hardly ever found them two years running in the same locality. The first kingfisher that I saw this spring was on the 3rd of April. One pair bred last year under the roots of an alder tree on the bank of a fish-pond, the hole only a few inches from the level of the water: another pair in the bank of a small stream; their nest seemed to be in perilous proximity to the water in case of a flood, but the brood was reared in safety. I am happy to say that all the small birds that visit or remain with us during the year are protected from shot and snares, and their nests preserved. There is a standing order forbidding any gardener or keeper, or any one employed about the place, to destroy a bird's nest: the result of

this regulation is a large increase in the number of our small birds to what it was some few years ago, when a different policy was pursued, and every nest discovered by the gardener was ruthlessly torn from the branches and thrown into the river.—*H. W. Feilden.*

Stock Doves Breeding in a Church.—You will be interested to hear of an unusual situation for a stock dove's nest. The spire of the old village church here is a wooden one, and has for many a day given shelter to a loving couple of white owls and several pairs of starlings, not to mention the noisy sparrows which have taken possession of the water-spouts. During the summer of 1865 I often remarked a pair of pigeons flying out from a good-sized hole at the base of the spire. They looked like stock doves, but the scarcity of this species here in the breeding season, as well as the unlikely situation which they had selected, caused me to think at the time that they could be only a pair of escaped blue rocks. I could easily have shot one of the birds as he flew out, and thus settled the question, but I was anxious to prove something more. An inspection of the interior of the church, which I unfortunately delayed until the summer was far advanced, showed that a nest, evidently that of a pigeon, had been built upon a cross-beam above the bells. I was too late then for the eggs; the young had flown. There was nothing for it, therefore, but to wait until the following spring, and then endeavour to secure a pair of young birds. Accordingly, jotting down a memorandum in my note-book, and resolving to keep the fact of there being pigeons in the church spire to myself, I waited patiently for another nesting season. My patience has been so far rewarded that, after watching a pair of birds take up their quarter in the same site as that selected the previous year, and after several anxious visits of inspection, I was at length enabled, in July, 1866, to carry off a pair of fine young pigeons, which were almost ready to fly. The "coo" of the stock dove is very peculiar, and by this time I had heard and seen enough of the birds in question to convince me that they belonged to this species. Their young, which I had secured, after being fed for some time in a cage in the house, were transferred to my aviary. They are now in fine plumage, and have proved, as I suspected, to be undoubtedly the young of *Columba ænas*.—*J. E. Harting; Kingsbury, Middlesex.*

Food of the Wood Pigeon.—Having read the communications of Mr. Blake-Knox and Mr. Cordeaux, in the 'Zoologist' of last month, with reference to the food of the wood pigeon (*S. S.* 593), I fully agree with them both. Here also they visited our turnip and rape fields during the severe weather of January, and made a field of the latter quite bare, by eating off the leaves and leaving nothing but stalks. In the winter of 1865-66 I shot a wood pigeon which had ninety-eight beech-nuts in its crop.—*R. M. Barrington; Fassaroe, Bray, Co. Wicklow, April 3, 1867.*

Red Grouse and Willow Grouse.—I have just seen Mr. Doubleday's remarks on the willow grouse (*Zool. S. S.* 707). In one of my former communications touching the identity of this with the British red grouse, I believe I mentioned that in the young birds up to the first moult the plumage of the two were undistinguishable, and until denied by Mr. Doubleday I believe this fact had not been disputed. Speaking of the red grouse, the prevailing epidemic is killing them off by hundreds here. One day last week I picked up five dead birds during a short walk on the moor: some of them were in excellent condition, while others were reduced to mere skeletons. My impression is that the disease is partly owing to the moors being overstocked.—*George Norman; Ben Rhydding, April 12, 1867.*

Golden and Green Plovers (see Zool. S. S. 690).—On the 2nd of January, the morning after the first heavy fall of snow this year, large flocks of peewits continued passing overhead, and from that date until the breaking up of the frost great numbers congregated in certain sheltered bits of water-meadow around here, which continued almost entirely free from ice or snow. There were some small flocks of golden plovers at the same places, but these latter I only saw once or twice, and they were not numerous: within a day or two after the thaw commenced both species left us entirely. On the 18th of March there was another heavy fall of snow; at noon on that day I saw a very large flock of peewits passing overhead and flying S.S.E.; stragglers and small parties continued passing in the same direction at intervals until about 3 P. M., and for some days there were a great many in the water-meadows. At the same time very large flocks of golden plovers appeared in the neighbourhood. I had one of these birds sent to me on the 23rd of March, shot about four miles from here, by a farmer, who told me that he never remembered seeing larger flocks than those which had visited his farm during the previous three days; indeed he said that they were there “in thousands,” but very wild and unapproachable. This is an unusually late date for golden plover to be seen here. The bird I received had almost entirely assumed the black throat and breast of the breeding plumage, only a few scattered white feathers being visible.—*James Shorto, jun.*

Occurrence of the Avocet near Weymouth.—I have this day had an opportunity of examining a specimen, in the flesh, of the avocet (*R. avocetta*, Linn.) It was shot yesterday (March 19) by Capt. Pretor, of Belfield House, and is now in the hands of Mr. R. Rolls, of Weymouth, for preservation. It is an adult male, and in excellent plumage. Captain Pretor met with the bird in the Fleetwater, an inlet of the sea estuary from Portland Roads in a westerly direction, and separated from the West Bay by the Chine Beach. This inlet, from Abbotsbury to Micherell, has many small streams emptying into its waters. At low water much mud land is uncovered, and with small rills threading the mud in various directions. At the western end is situated the swanner, and also the decoy, the property of the Earl of Ilchester. It is an excellent feeding-ground for wading birds. I am sorry to say that, in this case at least, the avocet did not visit Dorsetshire willingly. I attribute its appearance to the continued hurricanes from the eastward that we have lately experienced, and fully expect to hear of many rare birds on the eastern coasts. I hear that a hoopoe has been killed here, but I have not yet seen it, although I believe it to be a fact.—*William Thompson; Weymouth, March 20, 1867.—From the ‘Field’ Newspaper.*

Little Bittern in Cornwall.—I have just received another specimen of the little bittern, in fine plumage, in fact exactly the same as the one I received about this time last year from Scilly, which is noted in the ‘Zoologist’ (Zool. S. S. 311). The present bird was killed in an orchard in the parish of St. Hilary, near St. Michael’s Mount. Its weight is just under three ounces; the Scilly bird was three ounces exactly.—*Edward Hearle Rodd; Penzance, April 12, 1867.*

The Smew, Green Sandpiper, &c., in Suffolk.—A fine old male smew was shot about the 17th of January last, near Beccles; about the same date a female specimen of the green sandpiper was obtained near Rendlesham, and on the 29th of March a male of the hooded crow at Worlingham, near Beccles.—*T. E. Gunn.*

Guillemot and Razorbill near Eastbourne.—A few of these birds have been procured, but it is surprising how much scarcer they are than they were a few years since.

So numerous were they in the Channel at the time I am referring to that it was no uncommon thing for a party of two or three guns to kill thirty or forty in an hour or two. Very few breed at Beachy Head now, the ledges on which they used to lay their eggs being swept away by the recent "foundering" of the cliffs.—*John Dutton ; Eastbourne, April, 1867.*

Redthroated Diver and Norfolk Plover in Somerset and Devon.—A redthroated diver was picked up dead by a small pond at Bishop's Hall, near Taunton, on Thursday, the 28th of March. Bishop's Hall is a long way, nearly twenty miles, from the sea, and there is no large piece of water near. I saw the skin of this bird at the Museum at Taunton: it was just assuming the summer plumage, as there were a few red feathers on the centre of the throat, and many gray ones were making their appearance on the sides of the throat and on the cheeks. I also had one of these birds sent me from Exmouth on the 29th, in full summer plumage. Is not this rather early for the bird to have assumed this plumage? The Norfolk plover I received from Exmouth on Saturday, the 23rd of March: it had been killed there the day before.—*Cecil Smith ; Lydeard House, March 31, 1867.*

Ichthyology of Norfolk.—Being engaged in collecting materials to form a list of all the species inhabiting the rivers and coasts of Norfolk, for publication in the 'Zoo-logist,' I shall feel particularly obliged to any gentleman for any information or interesting facts relating to the same.—*T. E. Gunn ; 3, West Pottergate, Norwich.*

Occurrence of two Rare Land Shells in Sussex.—The fine weather which we enjoyed last week tempted me from home, and I walked over the grassy slopes of the South Downs and through the beautiful beech-woods at Harting, Sussex, where I found much to delight the eye of a naturalist. I might descant at some length on the birds, plants and shells which attracted my attention in the course of my rambles, but I fear that my enthusiasm would cause me to lose sight of the chief object I have in writing, which is to give you a new locality for two of our rarer land shells, *Helix obvoluta* and *Clausilia Rolfii*. During a visit to Up Park I had a great treat in looking through a collection of land and fresh-water shells, formed by an excellent naturalist who resides there, Mr. J. Weaver. The collection, which has been made entirely in Sussex, is a very comprehensive one, and I was interested in observing several of the rarer species well represented by county specimens. Amongst these were *Helix obvoluta* and *Clausilia Rolfii*, both of which may be considered, if not rare, at least very local. Mr. Weaver informed me that these shells are not uncommon in Up Park, where he has no difficulty in obtaining specimens. *Helix obvoluta*, I believe, has generally been found in woods upon the ground, amongst moss, or at the roots of trees; Mr. Weaver tells me that he has collected a great number of his specimens from beech trees, at a considerable height from the ground, and that he was often obliged to detach them with a long switch. *Clausilia Rolfii* is apparently peculiar to chalky soils, and the locality just mentioned, therefore, is on this account a favourable one.—*J. Edmund Harting ; Kingsbury, Middlesex, April 4, 1867.*

List of Birds noticed in East Finmark, with a few short Remarks respecting some of them. By CH. SOMMERFELDT, Parish Priest of Nässeby. Translated and communicated by H. E. DRESSER, Esq.

(Concluded from Zool. S. S. 700.)

NOTES.

1. *Aquila fulva*.—Not common, for though I have had means of seeing many eagle-skins I have never seen but one of this bird. The bird in question was caught in a steel trap at West Tana. In 1858, on the 4th of May, two eggs were brought to me from Lerpollen on the Tana. The ground colour was dirty white, with a pale violet-gray tinge, the one without brown spots, the other covered with larger and lesser brown spots, chiefly at the pointed end. On the 25th of April, 1859, one egg was taken from the same nest: this one was without brown spots, and less in size. The largest was 68 mm. in length, 55 mm. in diameter; the least 64 mm. in length, 50 mm. in diameter.

2. *Pandion haliaetus*.—Breeds at Karasjok, Alten and Enare, possibly also in the pine forests on the South Varanger and the Tana River, where it is well known both to the river Lapps and the fell Lapps. In the summer of 1855 I saw it at Polmak.

2 b. *Buteo lagopus*.—Is included as a resident, as Nordvi states that he has seen it during the winter at Mortensnæs, and skins have been brought to the "Fogde" at Karlebotten Fair in December, and at Polmaks Assizes (Thing) in February, with a statement that the birds had been caught in ptarmigan-snares. In 1853 I first observed them commonly in April at Nyborg. The snow covered the ground completely, but many lemmings were to be seen along the fjord.

3. *Falco gyrfalco*.—The commonest of the falcons occurring here. It nests at several places, as, for instance, at the Polmak Lake, on a mountain near Leibenjarg, at Polmak, at Meskelf and Beralvakke in Nässeby, at Ekkerö near Vatsö. Its eggs, four in number, light brown, marked with small dark brown spots, particularly towards the larger end, get lighter as incubation proceeds, so that shortly before they are hatched they are almost clay-yellow without spots. They are hatched about the 20th of May. In length they are 55 mm., in diameter 41 mm. It is not unusual for this bird to be, in the winter, found hanging in the ptarmigan-snares, as is also the case with *F. palumbarius* and *F. lagopus*.

4. *F. peregrinus*.—Is not with certainty known to breed in East Finmark. The eggs that Nordvi possesses were brought by a Kvæn-Lapp, who lives in South Varanger, and they may thus possibly have been taken in Norwegian territory. The eggs are whitish brown, with brown dashes and darker spots, which on the one are collected at the pointed end, the remainder of the egg being almost white. In the autumn it is often seen at Mortensnæs, but must be reckoned amongst our rarer birds.

5. *F. lithofalco* (*æsalon*).—Lays four or five eggs, either in the fells or on the ground in steep hills, or in trees not only towards the south and west, as Malm states, but also equally often towards the east. The eggs are, directly after they are laid, pretty violet-red with reddish brown spots, but after a day or two have passed they take their reddish brown ground colour with dirty brown spots. It lays an egg every other day. Some years it is very common, others very scarce. It arrives early in May and leaves early in October. It has difficulty in clutching its prey on the wing.

6. *Astur palumbarius*.—Breeds at Enare: it is seen sometimes, and perhaps breeds, at South Varanger.

7. *Strix nyctea*.—Is sometimes, when lemmings are plentiful, found very commonly; thus in 1853 and 1854; otherwise it is occasionally seen every year. It breeds, on the Varanger Næsset and the fells between the Tana and Lebesby, either on rubble or tussocks in large mosses. In the latter case it always chooses the largest tussock. In May, 1859, a sea Lapp found a nest in a steep precipice about a mile (Norwegian) above Karlebotten. When he found the nest there was but one egg in it. Having informed me of it and been told to let the place remain unvisited for a couple of weeks, he still went there earlier and found five eggs. In order to see if the owl had begun to sit, or if it could be expected to lay more eggs, he took an egg and put it in water. As the egg sank to the bottom he placed it again in the nest, but on his visiting the place, after a few days interval, all the eggs were gone. The fell Lapps tell me that the snowy owl always removes its eggs when anyone has touched them.

8. *S. lapponica*.—Occurs at Enare, from whence it sometimes moves northward after lemmings. In 1853 it has been shot at Polmak. It may be named here as worthy of note that a Lapp owl, which in the autumn of 1854 remained at Tana, bit the year's shoots off the birch-trees, so that the ground under the trees was quite covered with the twigs thus bitten off. When thus employed it seemed to go eagerly

to work, and, if the branch bent under its weight, would hang with its head downwards and bite round about. In Enare, from where Mr. Wolley has its eggs, it is said to build its nest in the densest thicket in the forest, rather high up in a tree.

9. *S. bubo*.—Has only been once observed in East Finmark, when one was shot at Lebesby, in the winter of 1852-53. It was then found sitting on the rocks.

10. *S. brachyotus*.—Is often seen in East Finmark, but has not been known to breed there. Possibly it may, however, breed in South Varanger during lemming years. I have five eggs of this bird from Karasjok.

10 *b.* *Cuculus canorus*.—Is not seen every year.

11. *Upupa epops*.—Has been once shot on the Finland side of the Tana River, near Utajok: a male at Polmak, in September, 1849, according to Nordvi.

12. *Sturnus vulgaris*.—A single specimen was shot on the 5th of April, 1847, at Vardö; another was found dead at Nyborg in December, 1866, after having been about there during a month's time. The latter was a young bird, and had probably strayed from the eastward, where it is said to occur.

13. *Corvus pica*.—Is seen singly now and then, more especially in the autumn. It breeds at Hopseidet, and in former times it has bred at Tana. Those that occur are almost immediately killed by the Lapps, who will not be disturbed by its chattering, believing that it forbodes misfortune.

14. *Garrulus infaustus*.—Occurs rather commonly, during the winter near habitations, during the summer more in the forest. In the spring it fetches food for its young, chiefly from the rein-deer flesh hung out to dry or from offal that has been thrown out. It is not known to eat carrion. It is not at all shy, and is therefore often caught in the snares which are set by the Lapps. When on my arrival in Finmark I applied to the Lapps, in order to procure its eggs, they all told me that it only bred in the pine forests. I then tried the Karasjok Lapps, and received from there, in the summer of 1852, three eggs, which, however, were near hatching. These were taken in the early part of May. I have since received from the Tana Valley several nests, which were taken in April. The nest is built in out-of-the-way places in a large dense wood; still not always far from an inhabited place, and high up in trees. The foundation and outside of the nest is composed of thin birch and willow-twigs and a few large straws, inside of that are fine straws, and the lining is composed of ptarmigan-

feathers and marsh wool (*Eriophorum*), sometimes plaited with thin juniper bark and a few feathers of the bird itself. Outside it is 8 inches 10 lines by 7 inches 3 lines, inside 3 inches 6 lines by 3 inches. Its eggs, three to five in number, are between 26 and 31 mm. in length and 20 mm. in breadth, differing both in form and size out of the same nest. The ground colour in the new-laid egg is greenish white, with a strong lustre, but soon gets darker, and when kept any length of time they get lighter again and grow almost grayish white. They are covered with grayish brown spots, which lay under and greenish brown ones laying out on the shell and generally collected in a circle round the larger end. In some eggs the larger end is almost covered with these greenish brown spots, so that the egg, from greenish brown at the thick end, gets lighter and almost unspotted towards the pointed end. Others have only large gray-brown spots here and there on the greenish white ground. It sits from the time that the first egg is deposited, which is necessary in spite of the warm construction of the nest, so that the eggs shall not take harm from the severe cold (sometimes 20° R.) that often occurs in April. The bird will not leave the eggs, however much noise is made near it—no! not even when one climbs the tree. It sits drawn up close on its eggs, and when lifted off and thrown on one side tries to get back to the nest whilst one is standing there.

15. *Bombycilla garrula*.—A single bird was seen at Tana, in November, 1851. On the 27th of March, 1852, a flock was seen on the borders of the Tana River at Nuvus. According to Mr. Wolley's statement they breed in the Naale Forest at Anajok, in Finland and near Muonioniska, in the second week in June, and lay three or four eggs. One egg that I received in 1857, from Mr. Wolley, is about as large as the egg of *Turdus iliacus*, 23 mm. long, 16 mm. broad, but more shapely, is bluish white, with light blue-gray and black spots all over. It much resembles the egg of *Sylvia turdoides*, which, however, has a greenish white ground colour and several larger brown blotches, and is stouter in shape.

16. *Hirundo urbana*.—Breeds here and there, but, according to Mr. Wolley, there is a colony of these birds in a fjeld at Bøgfjord, in South Varanger.

H. rustica.—Is to be seen every year at Vardö, but has not been found breeding.

17. *H. riparia*.—Is not uncommon, and breeds at several places, viz. Seida on the Tana River, Nuorgan in Polmak, and at Oxevaudet: at each place several pairs breed. It seems to me that they have been

oftener seen during the last year of my stay in Finmark, and I believe that they have become more numerous of late.

18. *Muscicapa grisola*.—Was found breeding in Polmak in 1856.

19. *M. atricapilla*.—I found this species breeding in a hollow birch stump at Polmak in 1855. The bird sat so close that it only left its eggs when the stump was broken off and fell down. The nest was formed of the thin outside strips of the birch-bark, and contained six eggs. It had nested before in the same stump, as under the nest were found the remains of an old nest of the same materials. Nordvi tells me that he found eggs of this bird in 1860.

20. *Cinclus aquaticus*.—Is found here and there, high up the rivers and near the sea, both in the summer and winter. It lays five white eggs.

21. *Motacilla borealis*.—Is commoner than *M. flava*. I think I have observed that the nest of *M. borealis* differs from that of *M. flava*, the former using finer and fresher yellow straws, apparently of *Festuca ovina*, which is common in Finmark, whereas the latter uses stouter faded gray grass, straws and leaves, giving the nest the appearance of being old and having been used before. I have, however, yet to decide whether this difference is always the case. Its eggs are not always pointed, as Schrader states in 'Cab. Journal.' I have a nest from Polmak with the eggs almost round. Some eggs have fine black streaks on a gray ground, with light brown spots.

22. *Anthus rupestris*.—Is not uncommon: it arrives in the commencement of April, and is the last songster that leaves in the middle of November. It breeds on the fjords, but not so commonly as on the sea-shore.

23. *A. cervinus*, Pall.—Is common; indeed at many places, such as Meskelf, at Næsseby, at Karlebotten in Polmak, commoner than *Anthus pratensis*. Its eggs resemble those of *A. pratensis*, both in form and colour, so much that it is often impossible to decide to which species they belong, the best marked difference being several larger extended spots on the eggs of *A. cervinus*, which, however, are by no means found on all.

24. *Sylvia trochilus*.—Is one of the commonest of the birds of East Finmark: its covered nest, which is almost always lined with white ptarmigan's feathers, is invariably to be found on the ground, and contains from five to nine eggs. These are generally reddish white, with rust-red spots; still one sometimes finds eggs of this bird that are covered with reddish brown and black spots, in which case they much

resemble eggs of *S. abietina*: I have a nest of pure white eggs. *Sylvia abietina* has not been noticed in East Finmark either by Nordvi or myself, nor at Muonioniska by Wolley. Besides, as the above-mentioned black-spotted eggs certainly are those of *S. trochilus*, the occurrence of *S. abietina* in East Finmark will as yet be very uncertain.

25. *S. sibilatrix*.—Is named by Schrader as occurring in East Finmark, but this must certainly be an error, as it has not been noticed either previously or subsequently.

26. *S. schœnobænus*.—May possibly have occurred and been overlooked, but has never been shot.

27. *Accentor modularis*.—I received six eggs from Seida in Tanen, which exactly resemble eggs of this species received from Denmark and the South of Norway: as, however, no one has noticed this songster here I will not include it. It occurs at Enare and Muonioniska.

28. *Parus sibiricus*.—This lively bird and *Fringilla linaria* are the only real songsters found during the winter. Its call-note can be heard almost every year at Nyborg between the 20th and 26th of March. It nests here and there, building in hollow trees to which *Picus tridactylus* and *P. minor* have formed an entrance. The nest is formed of green leaf-moss, on the top of which is a thick layer of wool, reindeer hair, but chiefly lemmings' hair. The eggs, seven to nine in number, are glossy white, with violet and reddish brown spots, often collected at the larger end, and they are rather thick in proportion to their length. They resemble eggs of *Sylvia trochilus*, but when fresh are not so red and are glossier. The spots on eggs of *S. trochilus* are more numerous, of a deeper reddish brown colour and spread over the whole egg. If one has the nest one can never be mistaken in the eggs. Mr. Wolley found eggs of *S. phœnicurus* and *Parus sibiricus* in the same nest. Schrader states that both *Parus major* and *P. palustris* occur, the latter not even uncommonly, but neither of them have been noticed by Nordvi or myself.

29. *Alauda arvensis*.—I heard, in 1851, singing at Tana, and the same year found the nest there. I have eggs from Tana that exactly resemble those of *A. cristata*, and probably are varieties of *A. arvensis* or *A. alpestris*.

30. *A. alpestris*.—Occurs commonly, arriving generally in the commencement of May, but in early springs before that. In the spring it seeks its food on such damp places where the snow, in consequence of springs or the damp, thaws early. During the summer it is found on dry sandy places, even where there is very little grass. It nests both

near the sea (for instance, on Angsnæs) and also far from it, and places its nest not always amongst grass and moss, but on the ground amongst the fallen leaves of small birch bushes. It breeds at Gamvik and Berlevaag on the North Arctic Ocean. Its nest consists of straws, and I have never seen one lined with feathers. Its three to five eggs are generally yellow or yellowish gray, with blue-gray and brown spots, which often collect and form a ring round the egg at the thick end. It forsakes its nest and eggs if one merely touches the latter. It sometimes has two broods; thus the eggs have been found at Mortensnæs on the 12th of May and in July. On the other hand, it has never been noticed breeding as late as August, when Malm visited Varanger. The name "sandlærke," stated by Malm to be used in East Finmark, has not been heard of by Nordvi or myself. Its Lapp name is worth noticing, it being called by the Lapps who take notice of the birds (and they are not few who do so), "Ruoscha alap" (Russian snow bunting), it coming to East Finmark from the east, and being often noticed amongst the snow buntings in the spring.

31. *Emberiza citrinella*.—I noticed this bird at Tana, seeking food for its young. Otherwise it is only seen singly during the seasons of migration, at Nyborg and Mortensnæs.

32. *E. rustica*.—Has not been found in East Finmark, either by Mr. Wolley, Nordvi or myself, although Wolley specially sought for it, and I have every spring a good chance of noticing outside my windows a quantity of spring birds (*Emberiza schœniclus*, *E. lapponica*, *Alauda alpestris*, *Anthus pratensis*, *A. rufogularis* and *A. rupestris*), when collected near some water during snowy weather, but amongst them I have never noticed *E. rustica*. Both Nordvi and I have small eggs similar to those described by Schrader, but one was found in a nest of *E. schœniclus*. *E. pusilla* has not either been noticed, though Schrader includes it.

33. *E. lapponica*.—This bird, with *Sylvia suecica*, *S. trochilus*, *Turdus iliacus* and *Anthus cervinus*, are the best songsters in East Finmark. It lets its clear, full song be heard when fluttering it raises itself high in the air and again descends, but it discontinues when the bird has descended somewhat, and with closed wings drops in a slanting line on some raised object. It will not allow another of its species near its nesting-place, and one may therefore see the males pursuing each other during the spring. It places its nest, which is lined with feathers (though sometimes there is scarcely a stray one) on a tussock amongst small weeds. Its eggs, from four to six in number,

vary, but when new-laid have generally a greenish tinge, and some are light green with dark brown spots, chiefly at the larger end. These eggs, like those of *Anthus pratensis* and *A. cervinus*, get darker as they are incubated—as the veins in the egg become developed; thus one finds in the same nest eggs light green and olive-green or yellowish brown.

34. *Fringilla domestica*.—A single bird is now and then noticed here, still it has not settled either at Vardö or Vatsö. In 1855 I saw four *F. montana*: they were collecting feathers for their nests, but though I sought carefully for these I could not find them.

35. *F. flavirostris*.—I do not wish to include this bird, as I am not certain that it occurs here. Dr. Kjærbølling certainly determined some eggs sent him to be those of this species, but I consider it an impossibility to distinguish the eggs of these two species in a collection; anyhow, some eggs of *F. linaria* that I myself took are so like those said to be of *F. flavirostris* that anyone would say that they had come out of the same nest.

36. In the autumn I have at Tana seen, amongst flocks of *F. linaria*, also *F. canescens*, which was larger, lighter in colour, and thus easily distinguished when seen together with *F. linaria*. It is uncertain whether it nests in East Finmark, though not improbable. Dr. Kjærbølling has determined eggs sent to him to be of this bird.

37. *Pyrrhula erythrina*.—I myself have not seen this species, but Nordvi named to me that he and Schrader saw it one spring at Nyborg, on the Varanger Fjord. I have eggs from Polmak that resemble those of *P. vulgaris*, but are darker green, with reddish brown-violet spots, and as the finder stated that the bird resembled *Anthus pratensis* it is possible that these eggs belong to *P. erythrina*. The nest consisted of straws, fine twigs and moss, lined with hair and *Eriophorum* wool, much resembling the nest of *F. linaria*, only larger.

39. *Loxia curvirostra*.—In June, 1859, one was caught at Karle-botten, near the shore, where it was seeking food. In July, the same year, another was shot at Markjok, one of the tributaries of the Tana River. It is said to be not uncommon at Enare, and possibly also occurs in the pine forests at South Varanger.

39. *Columba turtur*.—Was shot at Vatsö some time ago, and later one has been noticed at Vardö.

40. *Tetrao urogallus*.—Is found breeding at South Varanger, and single birds are found in the autumn at Tana. In Enare it is common, and when the frontier was closed served, to a considerable extent, to supply the inhabitants with meat.

41. *Charadrius helveticus*.—Malm states that he has seen this species at Veinæs, which means a place to the eastward of Berlevaag, on the Arctic Ocean. Neither Nordvi, Wolley nor I have ever noticed it.

42. *Grus cinerea*, which, according to Nordvi, has been once shot at Utsjok, and has been noticed at Varanger in the autumn.

43. *Tringa islandica*.—Atsö Jr. Wolley purchased a skin of this bird: it was said to have been shot in the neighbourhood. I have seen it on the fells between Varanger Fjord and Tana River, in June. An egg sent by Nordvi to Kjabolling was determined by the latter to be an egg of *T. islandica*. This, however, one of our rarest waders.

44. *T. minuta*.—Is seen in the spring on the Tana River, in the autumn on the Varanger Fjord in company with the other *Tringa*.

45. *T. maritima*, which is a common occurrence, is found breeding at Berlevaag, on the North Arctic Ocean, and probably breeds at many places in the interior of the Varanger peninsula.

46. *T. alpina*.—Occurs not only on the higher fell mosses, but is found breeding in June almost on a level with the sea. It arrives in the middle of May.

47. *T. Schinzii*.—Professor Nilsson observes, and very rightly, that it is curious that Schrader has found his bird breeding in East Finmark, for it has never been observed by Wolley, Nordvi or myself.

48. *T. platyrhynchos*.—Mr. Wolley found eggs of this bird at Muonioniska. The eggs that I have received from him are very glossy, and of the size of small eggs of *T. alpina*. The ground colour is whitish brown with a brown shade, with large and smaller brown blotches, and a few black spots on the larger end. It may occur in East Finmark, though it has not been noticed. This may also be the case with *T. subarquata*.

49. *Calidris arenaria*.—Schrader states, in 'Cabani's Journal,' that he found eggs of this species. Neither Nordvi nor I have ever seen the bird, and Schrader's statement is the more peculiar, for the reason that he never mentioned to Nordvi (who, living in the neighbourhood of the place he stayed at, often saw him on his journeys) that he had found the eggs. It is possible that he states to be those with large brown blotches—may be some eggs in N

that answer to Schrader's description. For the present, therefore, *C. arenaria* should be struck out of the list of the birds of East Finmark.

50. *Machetes pugnax*.—Arrives early in June, but is not very common. I have often had an opportunity of watching the males in the spring through a telescope, at a short distance off,—thirty to fifty ells,—but they never fought. I have certainly seen two males rush at each other with open bills, but the one has then laid down and the other put its bill on its head, neck or back, and in this position they would remain quiet for some time. The females in the meantime walked about quite peaceably.

51. *Totanus fuscus*.—Is found commonly in Enare, and is not uncommon along the Tana River, particularly in its upper valley. It is seen at Nyborg in the autumn. Kjærbölling describes its egg as shorter, stouter and more reddish brown than the egg of *T. calidris*: this is, however, wrong. The four eggs I have received from Mr. Wolley are bright grass-green, with larger and smaller brown patches, and are larger and more elongated than the eggs of *T. calidris*.

52. *Limosa rufa*.—In June, 1857, I saw a flock at the confluence of the Varanger Fjord, and late in July and August I have often seen both this bird and *Limosa melanura* at Vardö. It is never found breeding here, but is at Muonioniska. Possibly it breeds in the fell mosses of Varanger Næset, but it is more probable that its breeding places are further to the eastward, and that it only visits East Finmark when migrating.

53. *Scolopax gallinula*.—Of this bird I got from Karlebotten, in 1857, four eggs, which are larger than the eggs of *Tringa alpina*, highly polished, gray, with dark brown spots. In June, the same year, I noticed it at Nyborg, and heard its sounding flight, accompanied with the same bleating sound as *Scolopax gallinago* makes, and from which it has got its Lapp name, "the bleater," and the sound was scarcely much softer.

54. *Phalaropus rufus*.—Has been seen several times by Nordvi at Mortensnæs, towards the end of August, in summer plumage, swimming about on the sea near land. At Nyborg it has been shot in winter plumage in October. It has not been observed here during the breeding season.

55. *Fulica atra*.—Two specimens of this species were shot at Vardö in October, 1857, both young birds; probably they had strayed there from the eastward. It has been certainly told me that long ago it has

been found breeding on a large lake (Oxevandet) near the confluence of the Varanger, but I have never seen it here.

56. *Procellaria glacialis*.—Is seen now and then during the whole year, but does not breed here. It is so fearless that it flies down to the fishermen's boats, and sits quietly in order to get the liver of the fish caught. It takes greedily pieces of liver thrown out, and eats so much that it cannot fly up, and is thus often taken with the hand.

57. *Larus eburneus*.—Occurs now and then in the autumn and winter, particularly after a storm from the north.

58. *L. tridactylus*.—With regard to this and the other species of gulls I will name what has been noticed by Nordvi and myself at Varanger and the Tana, and by the commandant at Vardöhus, Scharffenberg, who takes great interest in Natural History. *L. tridactylus* arrives generally in May and leaves in September. At the confluence of the Varanger Fjord I have often had an opportunity of seeing flock after flock come from the eastward, and at the confluence rise up to get so high in the air as to be able to continue their flight towards the west over the Seida Fell. Generally this has been when a strong west wind was blowing. It does not breed in Varanger, but at Tana out towards the sea, and at Vardö.

59. *L. canus*.—Is commonest during the winter. It lays two or three eggs in all parts, on small islands, in fresh-water lakes, often near the sea, but also far from it,—as, for instance, at Suke and Bonakas,—and generally breeds in single pairs.

60. *L. argentatus*.—Breeds both at the sea and at fresh water, up the fjords, in single pairs, but at Vardö and other places in quantities. I have, for a couple of years, received from Commandant Scharffenberg, of Vardöhus, eggs, probably of this bird, which are light red, covered with red spots all over. It is stated that there are only two or three pairs that lay these eggs on Renöen.

61. *L. leucopterus*.—As to whether this bird breeds in East Finmark is not altogether decided, but it is said to breed on Renöen, near Vardö. It is not rare.

62. *L. glaucus*.—Is said to breed on Renöen, near Vardö.

63. *L. marinus*.—Breeds both near the sea and fresh water—as, for instance, Bonakas at Tana. Scharffenberg states that it is not the first gull that lays its eggs at Vardö, as it lays a week or ten days after *L. canus* has commenced to lay.

64. *L. fuscus*.—Breeds at Vardö. It may be a misunderstanding of Schrader's notes, when Pastor Pässler (Cabani's Journal) states that

neither this gull nor *L. argentatus* breeds so high in the North. As regards the construction of their nests, the gulls in East Finmark always use grass straws for the scanty foundation of their nests when such is to be got, and not sea-weed or sea-grasses.

65. *Lestris catarrhactes*.—A specimen of this bird was shot at Sværholt, and brought to Lebesby Assizes, where the man who shot it demanded head-money for it, as both there and at Tansö it had done great injury amongst the eggs and young birds.

66. *L. pomarina*.—Is seen every spring and autumn in the fjords, and about the end of July I have seen them flying down the Tana Valley. The fell Lapps insist that it breeds on Varanger Næset (Varanger Promontory), some little distance up from the sea, partly on tussocks in the mosses and partly in the fells (?). I have received an egg from Gamvik which is precisely like an egg of *L. pomarina* which Nordvi has received from Hölbölt from Greenland. It is not improbable that my egg is of this bird, as it is seen at Gamvik the whole summer.

67. *L. parasitica*.—Breeds on the sea-coast, but not so far in the fjords as at Varanger. At Vardö and Svartnæs single pairs breed yearly. This bird, as well as *L. crepidata*, varies in colour, but to suppose that the difference of colour is in consequence of difference of age or sex is scarcely right: anyhow, I have seen pairs of *L. crepidata* light-coloured alike, and pairs where the one was dark-coloured far forward on the breast, and the other almost entirely light-coloured underneath. Mr. Wolley noticed the same in several pairs of *L. parasitica* near Vardö. Some pairs were almost entirely gray underneath; in another one was light and the other dark, and in a third both were light-coloured underneath.

68. *L. crepidata*.—Occurs in the fjords, but is also seen on the sea-coast. Its commoner or rarer occurrence seems partially to depend on the lemmings; anyhow, in 1853 and 1854, it was found in numbers, and during the summer subsisted chiefly on these animals: since that it has occurred rather seldom. In East Finmark it does not breed in company with others, and it is seldom that more than one pair are found on the same moss. It lays one or two eggs, which are highly polished and tapering towards the pointed end. In the spring it pursues the kittiwake as eagerly as *L. pomarina*, in order to steal its prey from it, but is itself a diver, and therefore is often caught in traps; however, it seems to prefer pursuing others to seeking its food by diving. With regard to the nesting-places of the several skuas in

East Finmark, I can, from Nordvi's and my own observations, and information received from others, state as follows:—*L. pomarina* breeds inland, a short distance from the sea—as, for instance on Varanger-næssset. *L. parasitica* on islands in the sea and rather dry places on the mainland, but does not go far up the Varanger Fjord, whereas west of Vardö it seems to take the place of *L. crepidata*. *L. crepidata* in mosses and on islands in the fjords and in fell mosses up the larger rivers: thus Mr. Wolley found them breeding rather far up the Tana River, as also it is found at Karasjok: the number of lemmings and field mice may have some influence on its choice of a breeding-place. It is to me incomprehensible how birds so common as *L. pomarina* and *L. parasitica* can have been unobserved by Schrader.

69. *Anser minutus*.—Is chiefly found at Galbokjok, a tributary of the Tana River. From thence Nordvi received twelve young ones one autumn, which he tried to domesticate; he did not, however, succeed.

70. *A. cinereus*.—Occurs in the autumn here, and is said to breed at Tamsö, in West Finmark. *A. arvensis* and *A. segetum* are found, however, yearly breeding at several places.

71. *A. torquatus*.—Occurs both in the spring and autumn, migrating to and from Spitsbergen, where it breeds.

72. *A. leucopsis*.—Has been shot at Angsnæs, in Næsseby.

73. *Anas tadorna*.—Has, according to Nordvi, been shot several times at Karlebotten, in Varanger.

74. *A. penelope*.—Of this duck both pure white and pretty yellowish white eggs are found.

75. *A. fuligula*.—Is found breeding at Enare, and possibly also in South Varanger.

76. *A. marila*.—Is certainly not, as Schrader states, common. The only place in East Finmark where it is known with certainty to breed is on the Polmak River.

77. *A. leucophthalmos*.—Nordvi got some small yellowish white polished eggs from Enare, and sent them to Kjærbölling, who decided that they were those of this bird. The down was not brought with them, and it must be considered very uncertain as to whether these eggs are really those of this southern species of duck.

78. *A. clangula*.—Is found but seldom on the Varanger Fjord, but is common on the Tana River. *A. clangula*, *Mergus merganser* and *M. serrator* breed in hollow trees, and in order to come into possession of the eggs of these birds in the easiest possible manner the

Lapps put up, along the Tana River and in the woods, hollow trees, about two ells high, with a hole in the side. They generally succeed in getting one or another bird to lay eggs in them, and often three birds use the same trunk; thus *M. merganser*, *M. serrator* and *A. clangula*: indeed Mr. Wolley has found the eggs of *Strix funerea* and *A. clangula* in the same trunk. When the bird has discontinued laying eggs the Lapps empty the nest.

79. *A. glacialis*.—On the 19th of June, 1855, a male of this species was shot on the Polmak River, the change of plumage of which at this time of the year was peculiar, *viz.* head nearly white; neck, breast and belly in complete winter plumage; back in summer plumage; the long hanging wing-covert feathers white, excepting the two farthest back, which were grayish brown. The Lapps declare that those that winter here keep their winter plumage until late in the summer, whereas those that come from the south have donned their summer plumage when they arrive.

80. *A. Stelleri*.—Is found here throughout the year up in the fjords, more especially towards the spring, but further out towards Vardö—as, for instance, at Skal River and Koma River—in the summer. Its eggs have never been found here, but I have heard from Lapps who have remained on these rivers for the summer fishery, that this bird is supposed to breed there. I have also heard it stated that it breeds to the eastward, in Russian Finmark. That this bird's eggs are brought *commonly* by Russian fishermen and skippers to the traders at Vardö must, however, most distinctly be denied, and Schrader's statement may probably be founded on what has often been named to me, *viz.* that a Russ is said to have *once* brought eggs to Vardö which *he* stated and Schrader acknowledged to be those of *A. Stelleri*. Nordvi in particular has had every year a good opportunity of seeing quantities of the eggs the Russians bring, but these eggs have been, almost without exception, those of *Lari*, *Mergus serrator*, *Mormon fratercula*, *Anas mollissima*, *Uria grylle* and *Sterna*. I will not deny that it breeds either in East Finmark or in Russ-Finmark, but it is certainly most rare, and found in pairs singly, and the information respecting it is most untrustworthy. Thus Nordvi has received from South Varanger eggs of *Mergus serrator* which were said to be those of *A. Stelleri*: at Vatsö I have seen eggs of *A. glacialis* said to be those of this bird. On the 10th of May, 1858, I received two males which were much lighter coloured than the young males I had before obtained, and which were like females, excepting that the chin was black and the wing-covert

feathers more curved. These two young males, shot in May, were nearly white at the bill, the head light grayish brown, the green top-knot distinct, the black ring on the neck distinctly marked, below this a ring of chequered black and white feathers, the fore part of the breast almost pure brown; on the fore part of the wing a spot almost pure white, and one of the long curved wing-covert feathers half white and half blue. These were probably males in their second spring plumage. In April, the same year, I received young males which were altogether similar in colours to the females,—scarcely larger,—and also old males in their magnificent winter plumage.

81. *A. mollissima*.—Does not occur in any great numbers in the Varanger Fjord during the summer, as the Lapps shoot the bird and take the eggs. A few pairs, however, breed yearly there. It does not always nest near the sea; thus, in 1852, five eider duck's eggs were brought to me from near a lake at Rodbjerget, on the Tana River, about half a (Norwegian) mile from the sea. On the 7th of July, 1859, a pair, male and female, were seen at Nässeby, and in 1856 males, in company with females and recently hatched young, were seen at Andersby, near Vatsö.

82. *A. spectabilis*.—Is not a common bird in East Finmark. Schrader certainly states, but scarcely with any foundation for such a statement, that it is found in numbers in the Varanger Fjord in October. It is true enough that in October and November the eider ducks collect in large flocks, and fly about over the fjord and the country near the fjord, in the afternoon and the dusk of the evening, but in these flocks *A. mollissima* constitutes the chief portion; *A. Stelleri* is also found in large numbers, but *A. spectabilis* only singly in proportion to the other flocks.

83. *Graculus carbo* (*Carbo cormoranus*).—Is found along the Tana River up to Karasjok. It breeds both on the rocks and on low islands, as, for instance, on Skarholmen in the Tana Fjord. When it leaves the rock where it is sitting it flies down in a curve to the surface of the water, and rising again when its wings have touched the water flies thus away. This is its general habit, and I have very seldom seen it go down from the rock and swim away. On the 28th of August, 1858, a pure white specimen was shot at Fjelbena, in Tana.

G. cristatus.—Keep to the sea and is there common.

84. *Colymbus arcticus*.—Is probably not found every winter in East Finmark, but in the winter of 1858-59 several of these birds were seen at Karlebotten.

85. *Podiceps arcticus*.—Is, so far as I know, only accidental in Finmark, but it is said to breed at Enare. I have had an egg from Spitzbergen, which probably is that of a *Podiceps*.

86. *Uria troile*.—Of this species the three forms are found: *Uria ringvia* seems to be the commonest. In the winter of 1857-58 they were in vast numbers in the Varanger Fjord: *Uria ringvia* then predominated largely.

87. *Mergus serrator*.—Remains in East Finmark in mild winters. It was seen in Karlebotten in the winter of 1858-59.

88. *Alca impennis*.^{*}—One specimen at Vardö, April, 1848 (*vide* Nilsson's 'Fauna,' 5th edition, ii. 571.)

During my stay in East Finmark I tried to make a complete and large collection of the eggs of the birds occurring there, and made use of the Lapps to do so. At first it often happened that I had no further information than such as the Lapps gave me. As however the Lapps know all the commoner ducks well, and have fixed names for them, one could place reliance on their statements, but it also happened that nests were found, and the Lapps did not see the birds, and then I had no means of distinguishing between the eggs of, for instance, *Anas glacialis* and *A. acuta*, *Mergus serrator* and *A. marila*, as also I have of late often seen small eggs of *A. boschas* that could be taken for those of *A. acuta*, and larger ones for varieties of *M. serrator*. Mr. Wolley was the first to call my attention to the fact that in the down of the ducks one had a reliable mode of determining the eggs, as the down of different species differs. Lately the Lapps have always to bring the down with the eggs, and I will give a description of the down of such ducks as I have had an opportunity of examining.

A. *Anas clangula*.—The very thin light down is white. The centrum pure white. Rami rather long, white, with a slight gray tinge towards the points. The radii are not long, and lay rather close.

B. *A. glacialis*.—The rather thick and close down is blackish gray, like soot, with a light centrum, and consists of larger and smaller down. The smaller down has the centrum light gray and the rami light blackish gray right out to the point. The larger down has the

* The late Mr. Wolley made particular inquiries respecting this specimen, the result of which was that he considered that the bird shot could not have been *Alca impennis*. (*Vide* 'Ibis,' 1861, p. 377.)—H. E. D.

centrum light blackish gray; the rami dark blackish gray out to the point; the radii long, standing out almost at right angles.

c. *A. acuta*.—The rather large, thick and close down is light grayish brown with white centrum, making the white point of the rami appear indistinct; the centrum is quite pale brownish white; the rami gray towards the light centrum, shaded outwards with light grayish brown, the outer point being white; the radii rather long and standing out.

d. *A. Penelope*.—The large and not close down is dark grayish brown with a light centrum, but the white points are clearly visible; the centrum is grayish white; rami rather long, dark grayish brown, with a white point of rather more than one line in length; the radii long and sticking out, and not laying close. This down has, therefore, some resemblance to that of *A. acuta*, but is darker, and the long white points clearly seen.

e. *A. crecca*.—The short but close down looks grayish brown, with white spots on the ground of the white centrum and white small down. The lesser down has the centrum white; rami grayish brown; the white radii at the centrum rather close, whereas the brown radii are over one line long and placed rather apart from each other.

f. *A. nigra*.—The fine but thin down (taken off a bird shot in June) is very light with a reddish gray tinge; the centrum is white; the rami rather long, white with a reddish gray tinge and light gray point; the radii are very short and stand out almost at right angles.

g. *A. fusca*.—The down (taken off a bird shot in June) is dark with light gray spots; the centrum light brownish gray; rami rather long, dark grayish brown with light gray points.

h. *Mergus errator*.—The short but rather thick and close-hanging down is light blue-gray; the centrum light gray, almost white; the short rami light blue-gray with quite short light gray points; the radii light blue with gray points, giving the whole down the appearance of being strewn over with meal-dust.

IN consequence of the above paper Mr. Sundevall stated that Mr. A. G. Nordvi, of Mortensnæs, in East Finmark, was kind enough last year to write and give him information respecting the birds of that country, which, though not so complete as that furnished in Mr.

Sommerfeldt's paper, still on the whole agrees with it. This information has on a former occasion been spoken of by him at the Academy, and to some extent made use of by Mr. Sundevall, in his work on Swedish birds. Of the species included by Mr. Sommerfeldt one or two are not mentioned by Mr. Nordvi; but, on the other hand, this gentlemen includes two which are not named in the above paper: these two are—

Parus borealis, which is said to be found during the whole year on the Varanger Fjord, and

P. ater, of which two specimens were said to have been seen a long time ago, and one on the 12th of September, 1859.

H. E. DRESSER.

On the History and Habits of the Roe-deer.

By EDWARD R. ALSTON, Esq.

OF few common European species is less generally known than of the roe-deer (*Cervus capreolus*, Linn.)—a species which, for beauty grace and agility, is perhaps unsurpassed by any other northern quadruped. Even in Prof. Bell's excellent 'History of British Quadrupeds' the account of the roe is neither exhaustive nor altogether correct, and the remarks of Mr. Macgillivray ('Naturalist's Library,' vol. xvi.) are not much fuller. I therefore make no apology for having gathered all I have been able to learn from authentic sources as to the life-history and habits of this most interesting species.

The roe-buck reaches a height of about thirty inches at the shoulder, and his average "clean" weight (that is, after being bled and disemboweled) is in Scotland about thirty-five pounds, though fine bucks often attain a weight of from forty to fifty pounds, or even more. In summer his coat is coarse and of a reddish cast; this is changed in September or October for a winter suit of much finer texture, and of a peculiar yellow-gray tint, each hair being gray towards the root and tipped with pale yellowish fawn. At this season I have observed that roe-deer from the Highlands are of a lighter and purer gray than those killed in the Lowlands. At all times the lips are marked with pure black and white, the buttocks are white, and the lower parts and inside of the limbs pale yellowish fawn. Albino roe are sometimes killed: I have seen the skin of one in the collection of the Markgrave of Baden, at Zwingenburg Castle, on the Neckar; and a few years ago

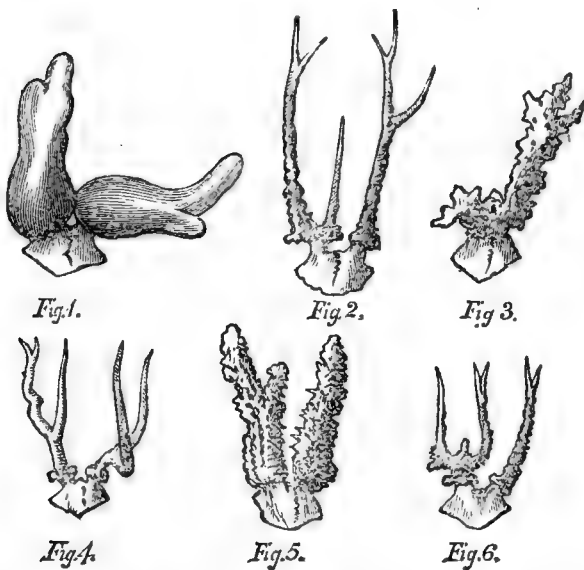
a beautiful example occurred near Luss, on Loch Lomond; it was protected for some time, but perished during severe weather, and is now preserved in the collection of Sir James Colquhoun. The fawns, like those of most deer, are beautifully marked with white spots, arranged in lines along the flanks.

The history of the reproduction of the roe-deer has long been a puzzle to German naturalists and sportsmen. The old story, which has been adopted by almost every English writer, was that the rutting season was in November and December, and that the doe went five months with young. But it has long been known by continental observers that the buck seeks his mate in the end of July and beginning of August, at which season he is constantly decoyed in Germany by an imitation of the cry of the doe; and Dr. Tiegler's anatomical investigations proved beyond doubt that this was the true pairing season. Still the problem seemed as dark as ever, for *no* fœti were ever found until the beginning of January, and then only of very small size and undeveloped organization. In the year 1843, Professor Bischoff, an anatomist of European fame, took up the question, and spent ten years in careful study, the results of which he published in an elaborate and beautifully illustrated treatise entitled '*Entwicklungsgeschichte des Rehes*' (Giessen, 1854), in which he settles the matter most conclusively, and at the same time introduces us to a new marvel of Natural History. The results of these investigations, during which he examined between a hundred and thirty and a hundred and fifty does, are briefly as follows. The rutting season is in July and August, but instead of the *ovum* or germ rapidly developing as in other species it remains dormant and of very minute size until the middle of December (four months and a half); then it suddenly quickens, and is developed with rapidity, the whole period of gestation being forty weeks. It would of course be impossible in a paper of this nature to follow Professor Bischoff through all the steps by which he demonstrates these extraordinary and exceptional facts; but his clear and patient narrative, his minute details, and, above all, his well-known character for scientific accuracy, leave no doubt as to the truth of his conclusions. I am not aware that any translation of Bischoff's book has appeared in this country, but Mr. C. Bonar has given a popular account of his discovery in an excellent little work entitled '*Forest Creatures*.' One word before leaving this part of our subject. May not some similar facts, not yet elucidated, explain the mystery as to the breeding of the badger (Zool. 9217, 9277)?

The roe is generally described as strictly monogamous, but is not really so; two or more does are not unfrequently seen in the company of a buck at pairing time, and several bucks are often attracted by German sportsmen by an imitation of the doe's bleat, as already observed. Either one or two fawns see the light early in May, and are at first concealed in some dense thicket. They accompany their parents all through the summer, and if it is true that the latter drive them away in the rutting season, they certainly allow them to return afterwards, for I have seen old and young in company as late as the middle of October.

The first indications of the future horns of the roe-buck are two rounded knobs, covered with the well-known "velvet;" these are succeeded by straight simple points, three or four inches long, and in this state the young roe is termed by the German jagers "Spiess-bock" (literally, *spear-buck*). In due course these are succeeded by forked horns, having one point or antler directed forwards nearly at right angles with the "beam" or main stem; at this season the bearer is a "gabel-bock" (*i. e.* *fork-buck*, or forker). Another year sees the full complement of three points, the first or lower being directed forwards, the second or upper backwards: after this no further branches are added, although the horns become more heavy and massive as the animal becomes older. But these changes are not always regularly gone through, and although six points, three on each horn, is the full natural complement, heads with seven, eight, and even ten and twelve branches are to be seen in the museums of Germany, where the collecting of deer's horns is a not uncommon mania. Many of these large and magnificent head-gears belonged to roe-deer shot in the last century. The same thing holds good of the red deer (*Cervus elaphus*), so much so that some German naturalists assert that a different variety of the stag, with larger horns ("Brandthirsch"), was then found in Europe; but the fact that many of the old roe heads are equally wonderful in their development, seems to point to the better feeding and greater age of deer of old days as the cause of their superior beauty and size of horn.

The mention of fine heads naturally leads us to the wonderful and fantastic antlers which German collectors term "abnormitäten" (*deformities*): these likewise would seem to have been more numerous in old days. When in Germany, five years ago, I made drawings of many of these heads, and, by the kindness of Mr. Newman, some of my rough sketches are here reproduced.



Of these figs. 1, 2, 3, 4, and 6, are all in the Zwingenberg collection already mentioned, fig. 1 having been killed at Büdingen; fig. 2 at Odenheim; fig. 3 at Urloffen; fig. 4 at Heiligenbergen; and fig. 5 at Swartzach (the last in 1814). Fig. 6 is a sketch of a very curious head, kindly lent me by my friend Dr. Dewar; it belonged to a roe-buck shot a few years ago at Black Mount, Argyleshire. These are all from genuine specimens in authentic collections, but the inexperienced must beware of the ingenious imitations which are manufactured by unprincipled dealers. Deformities of this nature are doubtless to be attributed to various causes, and they may, I think, be divided into four classes: *first*, stunted growths, produced by bad food, &c., and also found in old and decrepit bucks; *secondly*, those caused by an accident or disease of the horn itself when in course of formation; *thirdly*, the effects of injuries to the generative organs of the deer; and, *fourthly*, genuine deformities, perhaps occasioned by some constitutional defect in the animal, or possibly by "breeding in and in." A female roe-deer bearing horns was shot last year in the Black Forest, according to a correspondent in the 'Field' newspaper (quoted Zool. S. S. 435): in this case, the only instance of the kind I ever heard of, the doe was probably diseased, like the hen pheasants which assume the plumage of the male.

The ordinary food of the roe consists of various kinds of grass and herbage, including the tender shoots of trees and shrubs: among other plants the *Rubus saxatilis* is said to be such a favourite as to have earned in the Highlands the name of roe-buck-berry. I have already

noted (Zool. 9359) an instance in which the stomachs of two examples which I examined contained quantities of Fungi of various sorts. I am not aware whether this has been observed by others or not.

Roe-deer usually spend the day in the thickest cover, coming out to feed in the morning and evening, but of course this rule has its exceptions, and where protected and undisturbed they may be found abroad at all times. But never perhaps does this most graceful deer look more lovely than when he issues from the shade of the wood, just as the setting sun is making the red pine-stems more ruddy with its glow, his mate by his side and the snow-flecked fawns following timidly behind: still he stands for a moment to reconnoitre, then, if all is quiet, leads the way slowly and gracefully to some quiet meadow or grassy glade, where the evening meal may be sought in safety; but if his quick eye, ear or nostril detects danger, away they go with a strange bounding gallop, which, along with the conspicuous white mark on the quarters, reminds one of the descriptions of the springbok of South Africa. The roe-buck's speed is not very great, but its leaps are often wonderful and very beautiful: I have repeatedly seen one take a fence much higher than itself in its stride, and that without any perceptible effort. Like most wild animals the roe seems to have its regular pathways and haunts, and may constantly be seen at the same place at a given hour. It seldom remains for any length of time in an unwooded district; but, being a wandering creature, will cross a large expanse of open country in the course of its migrations. Nor is its way easily stopped by a river, or even lake, for it is a bold and skilful swimmer, unfitted as its slender limbs and small hoofs would seem for such a purpose: it frequents several of the islands of Loch Lomond, and passes from mainland to isle of its own free will, even when unpursued. Its voice is a short harsh bleat, which has been compared to a bark. I have never heard of an authenticated instance of the wild roe turning to bay, even when wounded, but tame ones which have lost their natural fear of man are most dangerous pets, and have even been known to inflict mortal wounds with their short sharp horns.

In Scotland roe are usually shot by driving the woods which they frequent with beaters, the guns being posted in the favourite passes. They are in good condition from September or October till March or April, but the venison is not generally esteemed, being somewhat dry and lean; however, skilful cookery will work wonders with it. On the Continent the same plan is followed in the German "treib-jagd," or

battue, the beaters being often assisted by the little "dachs-hund" or badger-terrier; there the bucks are also decoyed in the pairing season, as already mentioned, or they are shot with a rifle from some hiding-place near their feeding-grounds ('Field,' 13th July, 1861). In some parts of France the roe is still regularly hunted with packs of hounds, and is said to show good sport: it leaves a very powerful scent, and in the South of Scotland is frequently a source of annoyance to fox-hunters, leading the hounds from their proper game.

The roe is generally distributed throughout central Europe; it is said to be found in Italy, is common in many parts of France, and very abundant in all the forests of Germany. In Switzerland, however, it is rapidly becoming scarce; indeed F. von Tschudi says that in another century it will probably be extinct in that country ('Thierleben der Alpenwelt,' p. 153). In Scandinavia Mr. Loyd says that the roe was found in many parts of Norway and Sweden, when Pontoppidan wrote (about a hundred years ago), but that it is now almost entirely confined to the south of the latter country ('Scandinavian Adventures,' p. 237).

In our own land the roe seems to have passed through various vicissitudes. There can be no doubt that it was abundant in the great forests which covered Britain in old days, when "pasties of the roe" were served in the baron's hall, and the stout old outlaws dressed its haunches "under the greenwood tree;" but when Pennant wrote he describes it as having disappeared, not only from England, but from the Lowlands of Scotland also, the first, he says, that were to be met with (going northwards) were in the woods on the south side of Loch Rannoch, in Perthshire. It is very different now; whether Pennant was incorrect, or whether, as is more probable, the careful preservation of game and the great increase of plantations have turned the tide, I know not, but the species is now abundant in most well-wooded districts of southern Scotland and northern England. In many places they are still increasing rapidly, and are obliged to be kept down to prevent their becoming destructive to the plantations: a year or two ago forty were killed at one time, on the Earl of Home's estate at Douglas Castle, in Lanarkshire. So here we have at least one of our larger native quadrupeds which does not appear to be doomed to perish before the advance of civilization, and none could be less easily spared than the graceful and harmless roe-deer.

EDWARD R. ALSTON.

205, Bath Street, Glasgow, April, 1867.

A Reindeer Hunt. By W. D. CROUCH, Esq., M.A., Oxon et Cantab.

WE dwelt in a "bod" on the banks of Gjendins-Osen, Anders and Thor and I; but perhaps I wrong my readers in presuming their knowledge of the situation of Gjendin or the significance of an "osen" or a "bod"—*non cuius* may still be applicable to lat. $61^{\circ} 25'$, long. 9° E., and Gjendin is a lake so situated, whose outlet into Skjoan River is called an "osen," and a "bod" is an abode of the genus hut, species Norsk: the elevation is over 3000 feet, the month was August, the year 1866. We had an object in view in thus selecting a habitation forty-two miles from any village, which object will be best indicated by the contents of our "bod," viz. a long Enfield (I wish it had been short), a double-barrelled rifle by Wilkinson, a Norsk Government breech-loader and a double-shot gun; also a setter and retriever; a butterfly-net, sweeping-net and accessories; two rods and a sketch-book; a waiting-maid, "Trondjems Aquavit," and tobacco; also coffee and other appurtenances of the inner man. Thus reindeer, willow grouse, ptarmigan, hares, &c., trout, butterflies, bugs, beetles, scenery and sketches, and even something beyond "good digestion" to "wait on appetite," when fatigue was too lazy to cook dinner, may be considered as among the attractions commanded by this our "bod" at Gjendin. The summer days had at length commenced to abandon their objectionable habit of remaining up all night, so that we were enabled to distinguish breakfast from supper, and to use the term "to-morrow" with some degree of propriety. Accurately, then, to-morrow we would go "paa ren's jagt," as Anders remarked, leaving our light-handed Phillis (her name was Rangnild) to prepare savoury messes for our possibly empty-handed return. Ren had been seen, through a glass distantly on Brurskard, so, when the evening red had shaded through gray into the yellow tints of morning, we drank the inevitable coffee and started for the high fjeld. But, oh! those abominable matutinal coffee drams, destructive alike of appetite and wind! What can that man do, be his resolution never so heroic, whose bedroom is invaded by the richest cream, the whitest sugar and the blackest coffee with quaint cakes, borne by a smiling damsel in indescribable costume? a man of passage may perhaps partake and be thankful; a sojourner, unless regardless alike of body and soul, had better bolt his door, *crede experto*. Such reflections accompanied me at least for a portion of our path by the lake of Leirungen, whereon many ducks floated up

Varge-backen and over such mosses as the world cannot show elsewhere, and a kaleidoscope can only faintly express: Iceland and ren-deer mosses in stripes of the purest yellow and most delicate French gray and spotless white lay studded by the jetty black berries of the *Empetrum nigrum* or "kräkling," and the purple bloom of the "blaaber" (*Myrtillus*), and were relieved by the deep green leaves of the *Arctostaphylos*, and enlivened by such autumnal gold and scarlet as no painter—not even Turner—dared to paint. To this wonderful carpeting succeeded a wood of silver-barked and fantastic birches and dwarf willows, out of which many a grouse bustled, loudly crowing and showing literally the white feather, though autumn was as yet so little advanced, and the numerous hares yet preserved their summer suit of gray. The mysterious lemming darted from bush to bush, and indeed I could not find that this little wanderer was ever absent from these fjelds, though their periodic migrations draw unwelcome attention to them at irregular intervals, when, urged alike by instinct and necessity, they traverse the country in the fashion of white ants, locusts or Alexander himself. At length we reached the confines of vegetation, which died out in a blaze of lichens and leprarias on the gray transitional rocks, and here we started numerous packs of ptarmigan, to which a pair of magnificent golden eagles immediately attended, though they speedily relinquished the pursuit to enforce their superiority over an audacious buzzard who infringed their manorial rights. We now passed on to the snow, and the snow of August is perpetual; the elevation was about 4200 feet, but the Guldhöpijene, and the Glittertinden sent up their conical shafts of shining snow to an altitude of more than 8000 feet. We were now on Steenflybraen, and might expect to see ren-deer at any moment. We had not long to wait, a herd of about seventy came leisurely along the slope beneath us: we dropped among the rocks unobserved, and Anders begged us not to fire as they were fully 300 yards distant, and he confidently relied on a successful stalk by a slight *détour*, but young sportsmen have itching fingers, and soon the report of the Norsk breech-loader carried by Thor drove the whole herd in wild alarm down the steep side of the mountain unharmed.

Well, I have seen my dog laugh, not heartily perhaps, but unmistakably, but I incline to believe that no animal but an ape can swear, and with respect to this pleasing art there can be no doubt of the advantage of the human species, and the Norwegian race in particular.

The promiscuous and bizarre anathemas which hailed on the offender, the rifle and the whole herd were calculated to make pious ears gape aghast, and even hardened organs quiver amazed. On sped the affrighted herd—past Kjamhullet—under Knudshultinden—on, on, while we watched the diminishing black specks over more than ten miles of snow, such is the transparency of this elevated atmosphere. As I gazed in bitter regret the voice of Anders summoned us to follow. “They have gone up Leirungsbraen,” he said, “and they can never get out of that glacier:” so we started in pursuit, no *facilis decensus* was ours, and we sighed vainly for “skji” or snow-shoes, or more correctly snow-skates, which would have abridged our time and labour considerably, and but for the exciting sport the immensity of these concave snow-fjelds would have been almost overwhelming. At length we reached the glacier of Leirungsbraen, struggled over the lateral crevasses, threaded the subsequent parallel fissures, till at last, enclosed in the highest corner and huddled under an impassable wall of ice like that of the Strahek, stood the whole herd of deer; their knees and ankles (or rather their wrists and fingers) emitted a quick succession of sharp electric cracks as they stamped in mingled rage and panic, forming altogether a scene not easily forgotten. I much doubt if what followed was *sport*, though I knew it was “ren’s jagt,” in the full Norsk acceptance of the term—three volleys hailed on the devoted herd, after which they charged back on us in despair, and fled down the glacier and away many a league to some more secure retreat. Seven fell to our fire, but three struggled till they fell into the numerous crevasses: these we left for the present, and disposed of the others as best we could against the certain attacks of the invisible glutton, which scents slaughter from afar, like the vulture, and whose craft in eluding capture is well described by Lord Milton, in writing of the wolverine: so crafty indeed is this creature that the three dollars reward for his capture offered by the “Ting” seldom finds a claimant.

It was now late, and we had twenty miles to walk. The silver thread of the Skjoan River far below us wound in devious curves through the purple fjeld till it was lost among the blue hills of the lower country; above, the sun still shone in rosy splendour on the silent peaks: perfect stillness reigned around us, and death was at our feet. Man is not only a beast of prey, and even “ren’s jagt” leaves moments of compunction. It is an unphilosophical reason, but I think the game is too large, and in this case at least too defenceless. Be this as it may,

we were weary and late before we re-entered our "bod" at Gjendin's Osen.

W. D. CROTCH.

Kloyne, Vaage, Nordre Gudbrands Lalen,
Norway, March 26, 1867.

Labrador Badger in Kent; Abundance of Badgers in Kent.—An American badger (*Meles labradonica*) was caught by a small trap in a wood belonging to Mr. Bell, of Bourne Park, near Canterbury: it had evidently made its escape from confinement, but where the animal could have come from is a mystery, as there has been no exhibition of wild animals in this district for some considerable time. The general colour is a mixture of light brown; under the hair it has a fine silky fur, from three to four inches in length; chin, throat and breast of a pearly white; the face markings in a line with the ears are of a very faint light brown; the claws of fore feet horn-colour, and considerably longer than those of the common badger. The keeper's son, who caught the animal, unfortunately destroyed it, from not knowing its rarity; otherwise it was slightly injured by the trap, it having only two of its toes caught, and the force of the trap was not sufficient to break the bones. The biting force of this badger on the trap was such as to break the two upper canine teeth short off. The skull, with other portions of its bones, will shortly be submitted to Professor Owen for his inspection. There have been more specimens of the common badger captured and killed in Kent within the last two or three years than for many years previously; two were caught a short time ago in a wood near Knowlton Court; they were discovered by the East Kent foxhounds in drawing the cover: the earth was supposed to contain a fox, and the diggers were surprised to find their fox turn out to be a very fine badger, which was taken alive: it was placed in supposed security, but on the following morning the badger was gone, having made its escape during the night. The owner returned to the badger's earth to see if it had gone home; he was not long kept in doubt, for his dogs soon told him the badger had returned, and was not far in: digging was again commenced, and in a short time it was unearthed, with an additional one (the male) which had been overlooked on the previous digging. The female soon after its capture gave birth to three young ones, which lived but a short time. These two badgers are now alive and in the possession of Mr. Ayres, of Nonington, in Kent.—*Charles Gordon; Dover Museum, March 23, 1867.*

Correction of an Error: the Gray Seal.—Agreeably to the request of your correspondent Mr. Alston, whom I have to thank for the suggestion, the seal lately captured at Seaview, near Ryde, has been inspected, and I regret to say I was misinformed, as it proves to be the gray, and not the Greenland seal, as stated in my note (Zool. S. S. 700); but we cannot see everything, and must occasionally trust to others: however, I did go to Ryde, to make inquiry, but the seal had been sent on to Newport. I beg to inform Mr. Newman that not only a drawing of the teeth, but an outline sketch of the skulls of the gray, Greenland and common seal were sent, but the mistake arose from the small anterior and posterior prominences of the inner molars being taken for regular lobes. Not only are the canine-like molars characteristic, but so is the elongated flattened head, obtuse muzzle, diagonally sloped from

upper lip to nostrils, and small eyes set far back and high in the head. Few of the measurements are given, for the seal being stuffed they are not to be depended on.

Length, inclusive of tail (which is $4\frac{1}{2}$ inches)	-	-	4 ft. $4\frac{1}{2}$ inches.
Round the lower part of the neck	-	-	1 „ 7 „
Circumference of body below the shoulders	-	-	2 „ 9 „
„ of posterior part	-	-	1 „ 8 „
From upper lip to nostril	-	-	0 „ 2 „
Fore leg and foot	-	-	0 „ $6\frac{1}{2}$ „
Claw or nail of first toe, longest	-	-	0 „ $1\frac{3}{4}$ „
Hind leg	-	-	0 „ $9\frac{1}{4}$ „
Claw of first toe, longest	-	-	0 „ 1 „
Bristles, longest	-	-	0 „ $3\frac{1}{2}$ „
Teeth, upper jaw: incisors	-	6	Lower jaw 4
„ molars	-	10	„ 10
„ canines	-	2	„ 2
Total	18		16

The jaw is about $3\frac{1}{2}$ inches deep: the incisors small, excepting the exterior ones of the upper jaw, which are elongated. The bristles are of a light brown colour, and somewhat flattened. Ground colour grayish white, with a decided yellowish tinge: the upper parts more or less marked with dark and light brown spots, varying greatly both in size and shape: they are darkest on the anterior part of the back, but most numerous towards the shoulders, where they become almost blended. The lower part of back and sides more sparsely and indistinctly marked, becoming almost obliterated towards the belly, which is of a dull yellowish white. The head has a brownish central line, expanding at the crown, or rather nape, for the head is flattened, and has, as well as the back, a strong bluish tinge. There is a semicircular patch of dusky brown spots round the shoulders. Head long; body tapering or cone-shaped; forehead obtuse; legs very short, and mole-like; feet of great size and width; the grinders are from one-tenth to three-twentieths of an inch apart. The canine-like molars of this young seal, being so highly developed, leads me to believe that its powers of tearing and masticating must be very great, and it therefore preys on the larger fish. The head being so flattened and elongated, it must be inferior to the common and the Greenland seal in intelligence.—*Henry Hadfield; Ventnor, Isle of Wight, May 15, 1867.*

[I am much obliged for this explanation; I think there is no doubt about the former name being an error, and I think also that it is most desirable that all such errors should be rectified as speedily as possible.—*Edward Newman.*]

Vari-coloured Eyes in the Dog and the Horse.—I saw a very curious circumstance in an old “collie” dog, or rather a mongrel shepherd’s dog, the other day. I was crossing Windsor Bridge, when I saw the dog walking towards me, and I was surprised to see it had one eye deep brown, and one very light blue. I went up to its owner and questioned him concerning the dog. The man told me the dog was born with one eye blue and one deep brown, and never was in the least blind. His mother was a greyhound and his father a mongrel, I think, and their eyes were of the usual colour. But his grandmother was (as the man said) “chany-eyed,” that is, one eye blue and one brown. Might not this peculiarity have passed over one

generation in much the same way as lunacy or the gout in families? The dog was a very good house dog. The same farmer told me that he once had a horse who was "chany-eyed," not blind in any way, but who was born with a brown and a blue eye. This is also a curious fact; is it usual? I have heard of one other instance.—*Alexander Clark Kennedy; Eton.*

A Mouse's Store.—Mr. J. Dickens, of the Saracen's Head, near Holbeach, has just discovered a mouse's nest in his garden in which a winter's store of 1329 filbert nuts had been secreted by the industrious little animal. They measured half a peck, and weighed six pounds.

Double Bird's Nest.—Between the upright stems of an oak and two thorns, at the bottom of my garden, a pair of wrens built: whilst they were sitting a pair of flycatchers selected the top of the wren's nest for the foundation of their own, which they completed and occupied before the young wrens had flown, neither pair, so far as I could ascertain, interfering in the least with the other. The wrens have again built in the same situation, so I hope the flycatchers may return to their old home, though I fear the wrens will have left before the others commence operations.—*Herbert Greenwood; Sandford Lodge, Hampstead, May 13, 1867.*

What gives a Bird a claim to be classed as British?—If your correspondent "B. T. S." had looked over the lists of European birds, in the fourth volume of my work on the 'Birds of Europe,' with care, he would have observed two things: *first*, my two lists treat of birds occurring in Europe, *not* Britain; *secondly*, in my second list I have always referred to the country in Europe in which the bird has been accidentally observed. This is the case of the brown snipe alluded to by "B. T. S." I find it entered in my second list thus, "51. *Scolopax grisea*, Gm. N. A. England. Brown snipe, Yar. 3. Mor. 4." With regard to Sabine's snipe, I have given it in List 1, No. 367, as a *var.* of the common snipe. Steller's western duck was admitted into my List No. 1 because it has occurred in Sweden, Denmark and Germany, as well as England, and if, as Gmelin asserted, it breeds in Kamchatka, it is most probably a more frequent visitor to northern Europe than at present recorded. The buffelheaded duck is placed in List 2, No. 70, and England, its only (I believe) European locality, has been given. The American whitewinged crossbill (*Loxia leucoptera*) has occurred in England accidentally: I have a specimen shot in Suffolk. Gould, in his beautiful work 'Birds of Great Britain,' also figures and describes the *Loxia bifasciata* of Nilsson = *Crucirostra tæniptera* of Gloger, as a distinct whitewinged crossbill, and this is the point I presume in which the Editor of the 'Ibis,' like many other naturalists, differs from Mr. Gould. Bartram's sandpiper (*Totanus Bartramia*, Tem.) is No. 48 of my List No. 2, and England and Germany given as localities where it has been observed. With regard to the general question, "What constitutes a British bird?" the only answer which I think can be given is, that systematic writers on British birds have hitherto introduced all birds whose appearance in Great Britain has been authentically recorded once. I think this is a great mistake, and ought to be opposed by all scientific ornithologists. In all humility I ventured to separate these birds in my European lists, considering those which either bred or were frequent visitors in Europe as belonging to its Fauna, while those which appeared accidentally I placed in a different list. I have arranged my egg-cabinet on this plan. Professor Newton, the Editor of the 'Ibis,'

has been for years urging us to discard all American and other wanderers from our lists, and I think that the Editor of the 'Zoologist' has maintained the same views.—*C. R. Bree ; Colchester, May 2, 1867.*

[I have to apologize to my readers for allowing the communication from "B. T. S." to appear without authentication. It did not come to this office, as so repeatedly requested, but was left at Mr. Van Voorst's, and reached my hands only just in time for arrangement with other short communications. I quite supposed that some other communication had accompanied it, but do not find any, and I have no knowledge whatever of the writer. The subject is unquestionably a suitable one for discussion, supposing it to have been properly introduced, and supposing also that anything can be said to elucidate the question. My own opinion of the practice of introducing stragglers has been expressed in the 'Dictionary of British Birds.' I scarcely suppose any reader is without that book, but in case there is such an one I will repeat it here, "Notwithstanding the pains I have taken to collect and incorporate these various records (of the occurrence of stragglers) I am bound in fairness to state that I regard a great number of the species now added, as well as of those described by Montagu, as *not having the slightest claim to the title of British birds*. I confess this seems something like building a house of cards and blowing it down again. My duty, however, seems to me very plain. Like my great predecessor I have collected and arranged these records, and like him I express my opinion that *in a scientific point of view they are utterly worthless*. *The time seems to have arrived when the conscientious compiler must eliminate all such interlopers.*" To this opinion I still adhere.—*Edward Newman*].

Nesting of the Peregrine in Stirlingshire.—In the 'Zoologist' for April (S. S. 702) you published a few remarks of mine in reference to the nesting of the peregrine falcon in inland situations in Scotland. I now send you the result of my observations of this spring on the same subject. I wrote to a friend in Stirling, in the beginning of April, to inquire whether the falcons had made their appearance this spring in the hilly districts that lie to the south of the villages of Hippen and Gurgunnoch, in Stirlingshire, a locality at least thirty miles in any direction from the sea. In a few days I received a reply, to the effect that he had seen a pair of peregrine falcons sailing around a precipitous mountain-side, from which, in 1857, I had taken a nest. Begging him to watch carefully for the nesting-places, and to get ready a sufficient amount of rope, I waited till the 26th of April, and then went to Stirling. The morning of the 27th saw us at early dawn at the base of the precipice, and I immediately—directed by his barking note—descried the tiercel sailing high overhead: my companion pointed out a spot where he thought he had marked the nest, but, after a severe climb, there was no hole or trace of a nest to be found. Rather disappointed, but still hoping that the female was sitting close somewhere in the rock, I walked along the base of the crag, shouting out, and every now and then striking some rock with my stick: suddenly from behind me the female bird started forth from the rock with a wild cry, and began circling round our heads, apparently in great anger. Not having discovered the exact situation of the nest, we withdrew about a quarter of a mile, and hid ourselves behind a boulder rock, watching every movement of the falcons through a glass: as soon as we were out of sight the female began wheeling around that portion of the cliff where evidently the nest was. The tiercel came down and joined her, both sailing backwards and forwards across the face of the cliff, with a flight not unlike that of swifts. In a quarter of an hour or so the female bird alighted on a small projection of the rock,

stretched her pinions to their full extent, then gracefully closed them and commenced preening her wing-feathers: her toilet being arranged she turned round and popped into a small hole behind her in a most undignified manner, hobbling her head and waddling in after the manner of a pigeon entering a dovecote. I felt confident this must be the nest, but walking back again to the base of the rock, struck with my stick, and out she flew, screaming wildly and hovering about thirty feet over my head: the tiercel again joined her, and both of them displayed great indignation at my intrusion, circling round my head and uttering sharp cries, the tiercel, however, always keeping at a far greater distance than the female, which I could have shot with the greatest ease. To get at the nest was a matter of some difficulty: the precipice, a straight up and down slippery trap rock, was at least a hundred and fifty feet high, and the nest about fifty feet from the bottom: our best plan was to let a rope over until it touched the ground, and then with its aid climb up to the nest, but to accomplish this required more rope than we had with us, so we returned to Stirling. Sunday intervened, but the 29th of April saw us out again with an extra hundred feet of rope: letting the rope over, attaching it to a post at the top, constructing a rough ladder to ascend by, took us some hours, and it was six in the evening when my companion got up and took four eggs out of the hole: the eggs were lying on the bare rock, not a bit of material of any kind underneath them: during the time my companion was ascending the rope the female bird made most vicious attempts to strike him, sometimes coming within five or six feet of his head. I must mention what occurred when my companion was within ten feet of the nest: a pair of wild ducks, going to their lowland feeding-ground, came down the glen; the tiercel, as they passed the cliff, dashed off in pursuit, singling out the mallard, who with loud quackings attempted to rise above the hawk; the sight seemed too much for the female falcon; for a few moments she forgot her maternal instincts and joined her partner in the chase; making one dash at the mallard, which he eluded, she returned again to hover over our heads: a thick fog rolling up the glen shut out the tiercel from my view, and I could not see whether he killed his quarry or not, but I expect he did, as the ground at the base of the precipice was strewn here and there with grouse and duck bones and feathers. After withdrawing the rope, the falcon re-entered the hole, and as long as we were there did not leave it, and as it was getting dark I fancy she would remain seated in the nesting-hole till next morning. The eggs were deeply sat on, and gave me some trouble in emptying. These falcons will doubtless raise a second brood, unless some keeper gets his eye on them. I was so interested in their magnificent flight, courage and beauty of plumage and shape, that, easily as I could have done it, I refrained from doing so, hoping that they will hatch their second clutch of eggs and rear their brood in safety.

—*H. W. Feilden; Fleetwood School of Musketry, May 6, 1867.*

Erratum.—Zool. S. S. 702, 18th and 19th lines, for "In Aloa Craig, just above the village of Aloa," read "In Alva Craig, just above the village of Alva."—*H. W. F.*

Peregrine Falcon breeding at Beachy Head.—A pair breed every year in a hole in the cliff, but unfortunately the young are always taken, as they were last year.—*John Dutton; 51 Terminus Road, Eastbourne, April 20, 1867.*

Little Owl near Cambridge.—A very fine little owl (*Noctua passerina*) has been shot near here lately. I saw two gadwalls to-day, shot the day before yesterday.—*William Farren; 10, Rose Crescent, Cambridge, March 22, 1867.*

Habits of the Rock Pipit.—In Mr. Stevenson's 'Birds of Norfolk,' vol. i. p. 169, there is an article upon this bird as an "occasional visitor" to that county. Mr. Stevenson says that the rock pipit does not breed in Norfolk, and he mentions two specimens which he shot on the 7th of March, 1864, near Norwich, on the river-bank, as birds "that were passing over in their migratory course, and had paused a little while to rest and breed." I think if Mr. Stevenson will examine the question a little more closely he will find that the bird is a constant winter resident on the banks of the fine Norwich river, and that it merely migrates down to the coast to breed in summer. I do not suggest this from any actual knowledge of the subject as applied to the bird in Norfolk; but I infer it from what I know of the bird's habits in Essex. When I first came to Colchester, in 1859, Dr. Maclean, who is a well-known naturalist, put me in possession of the whole "little history," which is very interesting. All through the winter the banks of the Colne between Colchester and the sea are occupied by the rock pipit, and Dr. Maclean especially pointed out to me that whenever they were flushed they invariably alighted on the muddy portions of the shore—never on the grass. One of them was shot and stuffed by Dr. Maclean, so that there could be no mistake about the species, with which, in fact, he had been many years acquainted. In the spring all the birds leave the shores of the river, and will be found breeding among the grassy cliffs of the coast, returning to the banks of the river again in the autumn. Mr. Stevenson will at once see the source from whence come the birds found on the banks of the Orwell, as stated by Mr. Dix. They come from the Felixstow or Walton cliffs, where they breed every year. It is a fair inference, I think, that the birds shot by Mr. Stevenson on the Norwich river in March were going down to the coast to breed, and that he will find the same habits obtain in Norfolk which I can speak from my own knowledge do in Essex.—*C. R. Bree; Colchester, May 16, 1867.*

Water Pipit at Brighton.—When at Brighton, during Easter week, I saw several specimens of this bird in the possession of Mr. Swaysland, the naturalist, of Queen's Road: on inquiry I found he had obtained them near Brighton between the 16th and 20th of March last: there were ten specimens in all. As this is, I believe, but the second authentic record of the appearance of this species in this country, it is worth noticing.—*Frederick Bond; 21, Adelaide Road, May 2, 1867.*

Wood Lark at Brighton.—I was very much surprised at the number of wood larks I saw in Brighton: I was told that they had occurred in large flocks, as many as two thousand birds being seen in one day. I have myself never seen more than about two dozen in a flock, more often from five to ten birds, so I thought you would like to know of the occurrence of this species in such large numbers.—*Id.*

[From all correspondents in Sussex and Kent I hear of the extraordinary number of wood larks that have been observed during the past spring: it would be most interesting to learn more particulars as to the direction of their flight, condition, &c. Do these birds usually form part of the great vernal immigration? I have no recollection of having seen at any time more than three or four together, and more commonly one only, high up in the heavens, and pouring forth his delicious notes on the wing, in the manner of the sky lark.—*Edward Newman.*]

Snow Bunting at Eastbourne.—A splendid pair was shot at the "Wish Tower" on Sunday, April 14th, one of them being in the full summer plumage, that is, pure white head and breast, and black back. I have never seen one here in the summer plumage before.—*John Dutton.*

Hawfinches Nesting in Kent.—Hawfinches have been unusually numerous here this spring. I saw three on the 13th of April, the first I had ever seen, and became acquainted with their note, "tzit" or "tzit-it," the knowledge of which was of great use to me afterwards in detecting them among the tall leafy hornbeams. On April 25th I found a nest begun in a whitethorn, built of sticks, with lichen conspicuously interspersed in it. This I found, from that often-quoted and very accurate description in Latham's 'Synopsis' to be that of a hawfinch; and I soon found another nest in a tall whitethorn, by means of the old birds, who kept up a continual agitation round me. I now actively pursued the search, and found between that time and May 8th eight other nests with eggs, and five which I considered to be new nests, they being either difficult of access or unfinished when I went away. Of this large number all were built in thorn-trees save the following,—three in elder-bushes, about five or six feet from the ground, one in the hanging branches of a slender holly tree (this one quite close to the house), one on the horizontal bough of a hornbeam, one in a yew tree. By following up their note I found a flock of about twelve among some tall hornbeams. Some of these would probably have built nests subsequent to my departure. To find ten undoubted hawfinch's nests is, I believe, a rare occurrence for a young ornithologist, especially considering that I had never seen a hawfinch, for certain, previous to the four weeks in which I found the nests.—*Clifton; Cobham, Kent.*

Crossbill at Ripon.—On Saturday, the 27th of April, I shot a crossbill flying with great speed, together with eleven others: it was flying low. Its plumage was good and the feathers on the back very bright. I have never seen crossbills here before.—*Goderich; Studley Royal, Ripon, April 29, 1867.*

The Hoopoe near Helston, Cornwall.—The Lizard district has given us a specimen of the hoopoe this spring in the parish of Sithney.—*E. H. Rodd; Penzance, April 24, 1867.*

Kittiwake at Eastbourne.—Strange to say four or five have been procured lately, in the full summer plumage, with the pure white head, &c. It seems singular, as I never knew them got in that plumage here before, nor is there any breeding station here that I know of.—*John Dutton.*

The Silvery Hair-tail in Mount's Bay.—On the night of Tuesday, the 9th of April, there was captured in the net of one of the Mount's Bay mackerel-boats a specimen of the silvery hair-tail (*Trichiurus lepturus*). It was placed in my hands in a perfect state, and very shortly after its capture. As it is, so far as I know, the second specimen which has been British caught in a perfect condition, I subjoin a few particulars. Length over all two feet nine inches. Its depth at a half inch in advance of the origin of the pectoral was two inches and one-eighth, and it attained the same depth precisely immediately behind the vent, between which two points its depth all along was within one-eighth of an inch of the same measurement. The vent was twelve inches and a half from the extreme tip of the lower jaw. The greatest breadth of the fish was across the eyes, where it was one inch. The body reached its greatest depth at nine inches from the tip of the lower jaw, where it was six-eighths of an inch through. The dorsal fin contained one hundred and thirty-five rays, all soft: it

commenced on the top of the head, one inch behind the orbit of the eye and midway between the eye and the origin of the pectoral: it reached its greatest length of fin-ray just over the vent, where the longest ray was one inch and a half long: the fin ended a considerable distance from the tail. The pectoral was small, and consisted of eleven rays, all soft; its greatest length was one inch and a half. There was no tail-fin at all: the tail consisted of a long tapering bundle of caudal-rays closely attached and ending in a point. There was neither ventral nor anal fin, but from the vent backwards there extended along the ridge of the belly to a little aft of the termination of the dorsal a single row of very small spines, equidistant at about a quarter of an inch, the forward ones inclining backward. Forward of the vent the ridge of the belly was smooth. Looking at the character of the fish the head was powerfully built. From the eyes forward there inclined a stout plane, which changed sharply to an acute angle as it approached the tip of the upper jaw. At the extremity of the upper jaw there were (two on each side, placed irregularly) four very long barbed teeth; behind these there was in each side of the upper jaw a single row of small sharp teeth, of which three or four in each side towards the middle were larger than the others and barbed. The teeth in the lower jaw corresponded, except that in place of the long ones in front the lower jaw itself protruded beyond the upper, and contained at its extremity two large barbed teeth, extending upwards and backwards and finding no place within the upper jaw when the mouth was closed. When the mouth was shut the middle teeth on either side were interlocked, but the jaws there did not close home. Close behind these middle teeth there was a very peculiar scissors-like arrangement of the jaws, which enabled them to open to a much greater extent than looked probable (something after the fashion of the night-hawk's jaws). Indeed the gape of the mouth from tip to tip of the two jaws was easily two inches, but afterwards, when the fish got stiff the jaws would only open as far back as their apparent origin. I mention this because I see one prior observer lays stress on the point that the gape is small. There were no teeth in the vomer, but there was a rough process in the throat. The tongue was semidetached. The eye was situate high in the head. The forward edge of its orbit was one inch and six-eighths from extreme tip of lower jaw; its diameter was six-eighths of an inch. Irides silvery white. The sides of the head were hard and smooth. The preoperculum circular and semidetached, the operculum long and acutely oval, ending in a soft membrane which overlapped the origin of the pectoral. The gill-rays were so arranged as to give an unusually large surface of gill extending far up under the head and jaw. The nostrils were very large, and lay close up to the top of the head, just before the eyes. The lateral line starts from the point at which the operculum closes on to the top of the head, exactly under the base of the first dorsal fin-ray, and deflects with a slight curve in its incline, until at four inches, measuring straight from its origin, it gets in line with the lower orbit of the eye; thence it runs straight to the tail, parallel, until within a few inches of it, with the ridge of the belly. The top of the head, besides of the upper jaw and the outer part of the lower jaw, were metallic-blue. The dorsal fin was semitransparent and almost colourless, but what colour it had was yellowish brown, the fin-rays being dark. The rest of the fish was silvery, which colour was apparently caused by a thin and delicate membrane which rubbed off easily and left a dull flesh-white behind it. The specimen has been preserved for our Museum.—*Thomas Cornish; April 13, 1867.*

Parasitical Worms in the Stomachs of the Common Guillemot and Cormorant.—On the 18th of March a specimen of the common guillemot passed into my hands for preservation; it had been killed a day or two previously at Salthouse. In dissecting its stomach (as I almost invariably do with all specimens that pass through my hands) I found it empty, with the exception of a live worm that measured one and a half inch in length; in the gullet just above the entrance to the stomach I found four others, two of the same size, and the others smaller: these were apparently working their way to the stomach. On the 27th of the same month I also received for preservation an adult female cormorant, shot in the neighbourhood of Yarmouth: from the stomach of this bird I obtained as many as eighteen of these worms, which were of the same description as those I found in a former specimen of this species. These varied from three-quarters of an inch to two inches long; the majority of them were firmly fixed in a cluster to the inner membrane, the others were located close to the entrance, and, like those in the guillemot, were quite detached: in close proximity to the space occupied by the cluster just mentioned I noticed a number of small lumps, somewhat resembling tumours, with a small orifice in the centre of each; these were arranged in a similar manner to the worms. Am I right in supposing these are caused by the suctional power of these parasites, who, having derived all the nutriment to be obtained from that spot, seek a fresh site to renew their operations? I noticed the small holes only in the surface of the membrane from whence I had pulled them out, which perhaps they had occupied but a short time. I have preserved these worms in spirits. I also took from the cormorant an example of the sharp-nosed eel, measuring fifteen and a half inches in length—rather an unusual morsel: the head of the eel lodged in the bird's stomach, and therefore was partly decomposed; its body reached along the gullet, so that the tail came within two or three inches of its captor's mouth: the tails of two smaller eels, with the bones of the remaining portions, also occupied the stomach.—*T. E. Gunn.*

A Flight of Locusts.—At Malta about noon on Saturday, the 9th inst., the sky became filled with locusts, which appeared to be travelling from east to west over the island. The main body preserved a high altitude, but many, perhaps tired by their long flight, settled in different localities along their route. A light breeze was blowing from the westward, so that the insects were proceeding head to wind. The town was quite in a state of excitement. The boys were catching the locusts in their hats, and the sparrows and jackdaws were feasting on them in the air with evident satisfaction. This extraordinary spectacle lasted all the afternoon. During the whole of this time they never ceased passing for a moment, and towards sunset their numbers were considerably augmented. In some parts of the country the fields and gardens were covered with them. Most fortunately, for some unaccountable reason, they made no long stay, and on the following morning, with the exception of a few stragglers, had all disappeared. Nor do we hear of any serious damage having been done by them to the crops, which have already suffered much from the continued absence of rain. A similar visitation occurred at Malta in 1814, the year after the plague; and in 1850 a cloud of these insects appeared on the eastern side of the island and did some injury.—*Malta Times.*

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

April 1, 1867.—Sir JOHN LUBBOCK, Bart., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—
 'Exotic Butterflies,' Part 62; and 'Illustrations of Diurnal Lepidoptera,' Part 3, *Lycænidæ*, by W. C. Hewitson; presented by the Author. 'On the Data afforded by the Burchellian Collection as to the Geographical and Modificational Ranges of certain Brazilian Insects,' by J. O. Westwood; by the Author. 'The Zoologist' for April; by the Editor. 'The Entomologist's Monthly Magazine' for April; by the Editors.

Exhibitions, &c.

Mr. S. Stevens, on behalf of Mr. Higgins, exhibited six specimens of *Damaster blaptoides* from Japan: the species appeared to be very local, and to be found only near Nagasaki, whilst its smaller congener *D. Fortunei* was found in the North of Japan.

Mr. Pascoe exhibited, and read the following description of, a new species of *Toxotus* from Greece:—

TOXOTUS LACORDAIRII.

"T. (♂) fuliginæus, pube griseo-argentea tectus; segmentis duobus ultimis abdominalis, femoribusque apicibus exceptis luteis; tibiis anticis et intermediis dimidio basali lutescentibus; antennæ basi luteis, articulo tertio quinto longiore.

(♀) mare vix robustior; in toto nigrescens, sparse argenteo-pubescent; tibiis intermediis et posticis articulis basalibus dilatatis; antennarum articulo quinto tertio duplo longiore.

Long. 8 lin.

"The male somewhat resembles *T. Quercus*, but in the comparative length of the joints of the antennæ it is more like *T. meridianus*. The female is scarcely stouter than the male, and differs from it, as well as from all other European species of the genus, in having the third and fourth joints of the antennæ equal, and the two together not longer than the fifth; as well as in having the basal joints of the four posterior tarsi as broad as the succeeding joints: the same is also the case with the anterior tarsi, but the character occurs in other species. In both sexes the two tubercles on the prothorax are strongly marked and have a slightly linear form.

"I have not dwelt on colour, as that will probably be found to vary. The pair from which the above descriptions were made have been for some years in my cabinet, and were originally obtained at Mr. Stevens's, from a collection made in Greece."

Mr. Edward Sheppard read the following extract from the 'Daily News' of the 29th of March, 1867:—

"According to the Melbourne papers just received, enormous swarms of beetles have been noticed lately in Victoria, Australia. In the early part of January a swarm was noticed near Ararat, in Victoria, flying in a column about twenty yards broad, and keeping in compact order. They cast a dark shadow on the ground, and they were an hour in passing the spot from which they were seen. At a certain point they

turned off at right angles. The Eucalypti in the neighbourhood of these insects have been stripped of every particle of foliage. Great numbers of the beetles fall to the ground during the flight. The noise they make while flying is like that of a hurricane playing in the rigging of a ship. The colour of these beetles is a dark bronze."

Mr. Bates said that Anoplognathus was found amongst Eucalypti, but he thought the insect referred to was more probably a grasshopper than a beetle: it was not probable that Coleoptera would thus migrate in swarms.

Mr. Weir and Mr. Wallace referred to the clouds of Coccinellæ which were commonly observed in the hop-growing districts of Kent.

Mr. McLachlan mentioned that Dr. Brauer had recently described, under the name of Pharyngobolus Africanus, the earlier stages of a species of Cæstridæ, the larva of which had been detected in the throat of the African elephant.

Mr. F. Smith exhibited an ichneumon, Rhyssa persuasoria, placed in his hands by Mr. Bond, which appeared to have worked its long ovipositor, bradawl-fashion, through a piece of fir-wood, in quest of the larva of Sirex juvencus, on which it is parasitic; part of the ovipositor had been left in the wood. Mr. Bond had some years ago found at Bournemouth two ichneumons with their ovipositors so firmly fixed into wood that he was unable to remove them. Mr. Smith had always hitherto supposed that the Rhyssa inserted its ovipositor into the holes made by the Sirex, instead of making a hole for itself in the tree: if the latter were the rule, how did the ichneumon detect the presence of the larva within the wood, and know where to insert its ovipositor? Mr. Edward Doubleday, however, had told him that he had seen twenty or thirty specimens of the female of a Pelecinus which had perished with their elongated abdomens inserted into the stem of a tree, whence they had been powerless to extract them; the male had a clavate abdomen, but that sex had never been met with by Mr. Doubleday.

Mr. Bates inquired whether an ovipositor was not, homologically, a modification of one of the abdominal segments.

Mr. Smith thought it was rather a modification of the aculeus.

Mr. Wallace suggested the converse, namely, that the sting was a modified ovipositor, and that its use as a weapon of defence was a secondary and acquired use.

Mr. G. S. Saunders exhibited a number of Poduridæ, found near Stokesley, in pools or puddles consequent upon the melting of the snow, which had recently lain on the ground in the North of Yorkshire for two or three weeks.

The President believed them to be Podura (Anura) tuberculata of Templeton, though their shrivelled state rendered them difficult to identify with certainty.

Mr. Wallace mentioned that he had received a letter from Mr. Jackson Gilbanks, of Whitefield Castle, Wigton, on the subject of the distastefulness to birds of brightly coloured larvæ; the writer had frequently observed the dislike, or rather the "abhorrence and dread," of pheasants, partridges, young wild ducks and tomtits for the "gooseberry caterpillar:" it did not, however, clearly appear whether the writer referred to the larva of Abraxas or the grub of Nematus.

Paper read.

Professor Westwood communicated a paper entitled "A Decade of New Species of Mantispidæ in the Oxford Museum."

May 6, 1867.—Professor WESTWOOD, Vice-President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—
 ‘Proceedings of the Royal Society,’ No. 89; presented by the Society. ‘Proceedings of the Holmesdale Natural History Club for the year 1865-66,’ by the Club. ‘List of Coleoptera collected in the Mountains of Lycoming County,’ ‘List of Coleoptera collected near Fort Whipple, Arizona, by Dr. Elliott Cones, in 1864-65,’ ‘Additions to the Coleopterous Fauna of the United States, No. 1,’ and ‘Revision of the Dasytini of the United States,’ by the Author, Dr. J. L. Leconte. ‘Muscardine,’ and ‘Revue de Sériciculture Comparée,’ for 1863-64-65-66 (Nos. 1—9); by M. Guérin-Ménéville. ‘Essai d’une Faune Monographique de l’Archipel Indo-Néerlandais, I. Monographie des Scutellérides, II. Monographie des Péirides,’ by the Author, M. S. C. Snellen van Vollenhoven. ‘Natural History of the Tineina,’ vol. ix.; and ‘The Tineina of Syria and Asia Minor,’ by the Author, H. T. Stainton, Esq. ‘A Monograph of the British Psocidæ,’ by the Author, R. McLachlan, Esq. ‘Stettiner Entomologische Zeitung,’ 1867, Nos. 4—6; by the Entomological Society of Stettin. ‘The Zoologist’ for May; by the Editor. ‘The Entomologist’s Monthly Magazine,’ for May; by the Editors. W. S. Macleay, ‘Illustrations of the Annulosa of South Africa,’ Chenu, ‘Encyclopédie d’Histoire Naturelle,’ Coléopterès, vol. i.; Blanchard, Castelnau and Brullé, ‘Histoire Naturelle des Insectes,’ Hentschius, ‘Epitome Entomologiæ Systematicæ secundum Fabricium,’ ‘Prodromus Lepidopterorum Britannicorum,’ by a Fellow of the Linnean Society; Schmiedleins, ‘Einleitung in die nähere Kenntnis der Insectenlehre,’ Panzer, ‘Deutschlands Insectenfauna oder Entomologisches Taschenbuch für 1795,’ Nees von Esenbeck, ‘Hymenopterorum Ichneumonibus affinium Monographiæ,’ Fuessly, ‘Archives of Entomology,’ Humphreys, ‘The Genera and Species of British Butterflies,’ presented by J. W. Dunning.

Election of Members.

J. Sidebotham, Esq., of 19, George Street, Manchester, was elected a member. M. S. C. Snellen van Vollenhoven, of Leyden, was elected a corresponding member.

Exhibitions, &c.

Mr. S. Stevens exhibited a number of Australian Coleoptera, chiefly Carabidæ, selected from a collection sent by M. Dannel, from the district of Cape York.

Professor Westwood had recently received from a correspondent in New South Wales six or eight Cimicidæ of the family Reduviidæ (probably, *Enicocephalus tasmanicus*, Westw., Tr. Ent. Soc. ii. 24), which were described as flying, or rather dancing, in the air like midges, and which possessed a pleasant musk-like scent, which communicated itself to the letter in which they were enclosed.

Mr. Stainton exhibited cases of *Coleophora lixella*, the larva of which, when young, was found to feed on *Thymus serpyllum*, but afterwards transferred itself to a species of grass: cases were shown which were found on grass, but composed of portions of the leaf or calyx of thyme.

Mr. Stainton had intended to have also exhibited the larva of *Hyponomeuta egregiella*, but the specimen had, during the afternoon, begun to spin up in the box, and was invisible: the larva had been previously found by M. Millière, at Caunes, on

Erica scoparia, and a month ago Mr. Stainton detected it at Fontainebleau, on *Erica cinerea*.

The Secretary read a letter from Mr. R. W. Fereday, Corresponding Member, of Christchurch, Canterbury, New Zealand, dated 4th of February, 1867, of which the following is an extract:—

“I have much satisfaction in communicating to the Society the capture of a specimen of *Cynthia Cardui*, in the province of Canterbury, on the 5th January last. The plains of Canterbury are separated from the west coast of the island by a range of mountains; one of these is named Mount Torlesse, and is about 6000 feet above the level of the sea: immediately adjoining are some lower hills, and it was at the summit of one of these, about 3000 feet above the sea, that I met with this butterfly, and made the capture. It was flying about and settling on a piece of rock, the herbage up to the top of the hill being tolerably luxuriant amongst the stones. It is the only specimen I have seen, and have not heard of any one else having seen one in this colony. It is so precisely like my English specimens in size, colour and markings, with one exception, that I entertain no doubt of the identity of the species. I attribute the exception to a local variation; it is with respect to the round spots on the hind wings, which in my British specimens have no distinct centres, whilst in this specimen ocelli take the place of mere spots; it is, as it were, a spot of bright light blue, the same colour as the small blue marks at the anal angle of the hind wings, introduced into the centres of the normal spots of the English specimens. I enclose a photograph of it. I do not recollect whether any of the British examples have the blue centres to the spots. If the insect is *Cynthia Cardui*, of which I do not entertain a doubt, this capture is important, as it will add the link which will complete the circuit of the globe in the range of this species.”

Mr. Bates observed that all the Australian specimens of *Pyrameis Cardui* have ocellate spots on the hind wings, like Mr. Fereday's New Zealand example; it was a local modification, which, being constant, went to show that there had not been any recent immigration of the species into Australia or New Zealand. With regard to the supposed universal distribution of *P. Cardui*, Mr. Bates thought this was an error: the typical form of the species, no doubt, occurred in Europe and North America, in Asia and Java, and in South Africa, and the above-mentioned race occurred in Australia and, as now appeared, in New Zealand; but the South American specimens which were reputed to be *P. Cardui* were, in fact, a rosy variety of *P. Huntera*.

The Secretary read a letter from Mr. C. A. Wilson, Corresponding Member, dated Adelaide, 27th of February, 1867, in which the writer gave the following account, on the authority of his brother, Mr. Theodore Wilson:—“One day in December last, while stopping for a while under a tree at Cockatoo Valley, I saw a centipede actually slain by the heat. He dropped from a branch of the tree under which I was standing, and immediately made off at a great rate to find shelter, but he unfortunately came upon a piece of sand which was so intensely hot that he could not make any headway; his pace became slower, he turned about and savagely bit the leaves and sticks near him, then struggled, turned on his side, and gave up the ghost. In a minute or two he was shrivelled up like a piece of bark. I felt the sand where he was; it was so hot that it would have blistered my fingers had I kept them there a short time.” Mr. C. A. Wilson also announced the discovery, by Mrs. Kreusler and Mr. Odewahn, of

Gawler, of a *Stylops* of the genus *Xenos*, being the first time that a Strepsipterous insect had been detected in Australia.

Mr. Frederick Smith had received from Mr. F. G. Waterhouse, of Adelaide, and exhibited to the Meeting, specimens of *Paragia decipiens*, upon which the *Xenos* was parasitic, and read the following note:—

“In the Transactions of the Society (2nd series, vol. v., p. 127) will be found a paper on the geographical distribution of the *Stylopidae*: it is there shown that aculeate Hymenoptera from all quarters of the globe have been attacked by some members of that parasitic family; it also appears to be proved that these attacks are most general among the genera of the families of *Fossoræ* and *Vespidæ*. Among the *Apidæ* these attacks are confined to the *Halicti* and *Andrenidæ*; it is true that the genus *Bombus* has been mentioned as having been subject to attack, but this circumstance requires confirmation. Numerous instances have been recorded of attacks on species of the genera *Sphex* and *Pelopæus*, but they have been observed to occur most frequently among the *Vespidæ*. *Stylopized* Hymenoptera have been found in Europe, India, China, Celebes, Mauritius, Gambia, Brazil, Chili, North America, and Canada, and a single instance has been noticed in Tasmania, but at the time of the publication of my paper (1859) no instance of attack had been discovered in Australia. A recent communication from that country has been received by Mr. Waterhouse, announcing the discovery of an hymenopterous insect attacked by one of the *Stylopidae*. The next in question is the *Paragia decipiens* of Shuckard: it was taken by Mrs. Kreusler on the Gawler River, Adelaide, South Australia: specimens of the wasp were forwarded by letter; the *Stylops* is described as having four-jointed furcate antennæ, belonging probably to the genus *Xenos*, or to a genus closely allied. This is, I believe, the first notice of the capture of one of the *Stylopidae* in Australia. Of the four specimens of *Paragia* sent, number one has the remains of a male pupa-case beneath the third segment of the abdomen; the second and third specimens are similarly attacked; the fourth specimen has portions of two male pupa-cases beneath the third segment. It is rather remarkable that no female *Stylops* is found, as in British Hymenoptera they are found in the proportion of at least ten or twelve to one male.”

Professor Westwood mentioned that a Homopterous insect captured by Mr. Wallace appeared to have upon it the remains of a Strepsipterous insect, and it would be within the recollection of Members that Herr Nietner had found *stylopized* ants in Ceylon.

Paper read.

Mr. Bates read a paper “On a Collection of Butterflies formed by Thomas Bell, Esq., in the interior of the Province of Maranhã, Brazil.” During three months of the year 1866 spent at the gold mines of Montes Aureos, Mr. Bell obtained no less than 364 species of butterflies; of these nine were described as new, and the paper contained some interesting observations on distribution, variation and mimicry. One new genus was characterized under the name of *Pseudopheles*, allied to *Pheles* and *Esthemopsis*.

New Part of ‘Transactions.’

Trans. Ent. Soc., third series, vol. v., part 6, being the second part published in 1867, was on the table.—J. W. D.

Pilot Whales in the Firth of Forth. By EDWARD R. ALSTON, Esq.

ON the 26th of April I had an opportunity of examining a pilot whale, or roundheaded porpoise (*Globocephalus melas*, Trail), one of a large number which were taken in the Firth of Forth on the 20th of that month. This specimen was brought to Glasgow by the captors, a party of Newhaven fishermen, and exhibited to the public as a "grampus." As our knowledge of cetaceans is so limited, and as opportunities for careful observation are so few and far between, I have noted the following description and measurements of this example, which was a female.

In general outline it agreed with Prof. Bell's woodcut ('British Quadrupeds,' p. 483), except towards the tail, where the body was very much compressed, thin, rather broad, and narrowing suddenly just above the tail-fin, the angle of the caudal and ventral outlines being here acute and knife-like. The greatest girth appeared to be just in front of the back-fin. Lips thick; forehead or snout very bulging and rounded; teeth, which showed less than an inch above the gums, conical and slightly curved; tongue thick and fleshy. Blow-hole about three inches in length, crescent-shaped, with the horns directed towards the snout; eyes very small and placed near the angle of the gape. Flippers very long, narrow, tapering and scimitar-shaped, broadest towards the base, but narrowed just at the wrist. Back-fin long and sloping; tail-fin lunate, tapered at the points, and deeply cleft, reminding one very forcibly of the form of a screw-propeller. Teats two in number, ventral, placed one on each side of the anus. Skin tough, oily, very smooth and shining, about an eighth of an inch in thickness. Colour deep black all over, except a whitish heart-shaped mark under the throat and a broad pale streak running thence to the vent. Dimensions;—

Total length	-	-	-	-	-	15 ft. 2 inches.
From snout to back-fin	-	-	-	-	-	4 „ 7 „
Length of back-fin along base	-	-	-	-	-	3 „ 0 „
From back to tail-fin	-	-	-	-	-	6 „ 3 „
Depth of tail-fin	-	-	-	-	-	1 „ 4 „
Breadth of tail-fin, from point to point	-	-	-	-	-	3 „ 5 „
Length of left flipper along the anterior edge	-	-	-	-	-	4 „ 2 „
Breadth of left flipper	-	-	-	-	-	11 „
From vent to tail-fin	-	-	-	-	-	5 „ 14 „
From snout to eye	-	-	-	-	-	1 „ 7 „
From snout to angle of gape	-	-	-	-	-	1 „ 2½ „

All these measurements were carefully taken with a measuring-tape, following the curves of the body; as the animal was lying on its side I was unable to ascertain its girth. The men said their "fish" was twenty feet in length, but their idea of a correct measurement was to start from the mouth and proceed down the back, *up* the back-fin and *down* again, and so right on to one of the points of the tail-fin: in this way, which they all declared to be the only received and orthodox manner of measuring a whale, they easily added four or five feet to the true length. They were extremely civil and obliging in giving me facilities for making the above observations, as well as in supplying information as to the capture of the animals. From their statements, and from the accounts which appeared in the Edinburgh and Glasgow papers, I compile the following particulars.

It appears that the shoal, supposed to be about two hundred in number, had been known to be in the Firth for about a fortnight before the day of slaughter. On Friday, the 19th, the Volunteer Artillery at Portobello practised at them with their guns without success. Next day a Prestonpans fishing crew struck one of the whales with a harpoon, and the boat was dragged up the Firth, followed by the rest of the shoal; then boats put out from Newhaven and other fishing villages and joined in the pursuit. The whales were now thoroughly alarmed, and being surrounded were driven in shore. Many of them got into shallow water, where they were received with pickaxes, spades and other improvised weapons. The chase must now have been a most exciting one; wherever one whale led the rest followed (as is the invariable habit of the species); the wounded ones rolled in agony, spouting water mingled with gore; the shouts of the boatmen were echoed by the cries of the men on shore and by the reports of carbines (for the officers at Leith Fort had joined in the attack); the sea around was deeply tinged with blood; all combining to form a most savage and appalling scene. At length, about 5 P. M., one of the poor animals, the one I have described, was harpooned by the crew of a Newhaven boat, and at once took to sea, towing the boat after her and followed by the survivors of the "school;" she dragged her captors nearly to the island of Inchkeith, where she was at last despatched with spears. The rest now escaped, though three more were captured on Monday the 22nd, and one or two others were cast dead on shore by the tide. Altogether twenty-three pilot whales were slain on the Saturday: some of these were said to have measured as much as $25\frac{1}{2}$ and 27 feet in length, but, as above remarked, the fishermen's mode of measure-

ment is peculiar. Eleven of the "fish" were sold for £29 3s., the highest price given for one being £4 15s.; the one brought to Glasgow was also sold for oil. One of the men told me that when first seen, the whales were "just dannerin' (*i. e.* sauntering) up and down in the water," and that now and then they "reared right up, like sae many men." He opined that they fed on "sma' fish, and kind o' insecs," having probably learned something of the food of the right whale (*Balæna mysticetus*, Linn.) from seafaring friends. He added that they often saw shoals of the "grampus," as they call the present species, about the Bass Rock, but that it was but very rarely that they entered the Firth.

EDWARD R. ALSTON.

205, Bath Street, Glasgow, May, 1867.

Notes on the Breeding of the Booted Eagle (Aquila pennata).

By H. E. DRESSER, F.Z.S.*

ON my return to England this year from a journey through Southern Europe I remained a few days at Madrid, chiefly with the view of obtaining the eggs of some of the rarer birds frequenting the neighbourhood of that town. I obtained great assistance from Manuel de la Torr , the chasseur who had accompanied Lord Lilford: and as I and Manuel became very friendly, I was soon made acquainted with the haunts of most of the rarer birds. I was especially wishful to take the eggs of the booted eagle (*Aquila pennata*) with my own hands: and Manuel, on being applied to, at once agreed to act as guide, fixing an early day for the trip, and at the same time promised me that he would not think of returning to Madrid before we had obtained at least one nest of this eagle.

Accordingly on the 15th of May, 1866, I was up early, and ready for a start by half-past 6 A.M., at which time Manuel, true to his appointment, came to my room fully equipped for the trip. We left Madrid by rail, taking tickets to Aranjuez; but, meeting some of Manuel's friends in the train, with whom we talked matters over, it seemed from what they said that we should stand but a poor chance of success there, and we therefore determined to proceed to some station near Toledo. At Castellejo we left the train, and started off towards

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a belt of trees on the banks of the Tagus, some distance from the railway station. On our way we were stopped by one of the Royal keepers, who, however, on recognizing Manuel, apologized for stopping us, and, hearing on what errand we were, accompanied us for some distance. He told me that he had seen many great spotted cuckoos (*Cuculus glandarius*), and had already found some of their eggs in a magpie's nest, some miles distant from where we then were. I told him I would purchase any eggs he could procure for me; and he left us to seek for some, promising to meet me at the station in the evening if he could possibly get back in time.

On our way to the grove we saw not a few bee-eaters and some goldfinches, but nothing else. On entering the thicket we noticed several *Sylvia Cettii* and a *Sylvia Bonellii*, and found two or three colonies of *Passer hispaniolensis*. These sparrows build their nests on the outer branches of the highest trees, quite out of the reach of any stray egg-collector who might take a fancy to their contents. In some trees I counted ten or a dozen of their nests, all built of light-coloured grasses and the cotton of the white elm tree. Here seemed to be the very place for a naturalist; for he would certainly find no lack of specimens, and no small variety. We saw several black kites, common kites and a buzzard, before we had walked any great distance, and on pressing through the underwood flushed a pair of scops owls, who, after taking a good look at us from an old dead tree, flew noiselessly into a gloomy-looking thicket.

Manuel took me to the nest of *Aquila pennata* from which Lord Lilford procured his first eggs of this bird; but as it showed no signs of being tenanted we did not attempt to climb the tree. Not far distant from this tree we found a nest of the black kite (*Milvus migrans*), from which we scared the bird, and therefore had reason to suppose that it contained something, probably eggs. However, the tree was one which promised such an amount of hard work that neither of us considered a couple of eggs of *Milvus migrans* a sufficient inducement to attempt to climb it. We therefore proceeded to force our way through the rank undergrowth, keeping a good look-out for nests, and before long were rewarded by seeing a large nest which Manuel thought looked like that of a booted eagle. I carried only a walking-stick gun, for the benefit of the warblers, sparrows, &c.; so Manuel posted himself close to the tree with his gun cocked, and I proceeded to kick the tree by way of giving the tenant of the nest notice to quit. I had not to kick long; for the next moment a large

bird flew off the nest and was instantly knocked over by Manuel. It fell into a large bramble brake, into which we had some trouble to penetrate, but on doing so found a splendid female booted eagle, which, being only winged, showed fight, and gave us some trouble before we secured it.

Having secured our bird, we proceeded to examine the tree, which I had to climb, having agreed with Manuel that I should take the first and he the second. The tree was a huge and very high white elm, almost too thick to swarm up, and there was not a bough of any sort for a great height from the ground. Not getting much consolation from looking at the tree, I stripped to my shirt and trowsers and proceeded to go up. At first I mounted with great difficulty, the tree being so thick; but making use of the old knots, &c., I managed to get up until I could clasp the tree with some degree of ease, and was then soon at the first branch. The nest was placed nearly at the end of a stout limb at the top of the tree, and I had to rest several times before I reached it, but on doing so was delighted to find that it contained two eggs: these I carefully packed in a box that I carried fastened behind me to my belt; and, sitting down in the nest itself, proceeded to take notes; for I always make it a rule to take up my pencil and note-book with me.

The nest was firmly placed between three branches, was built entirely of thin sticks, twigs, and some dead bramble-branches, and was lined to the depth of about two inches with fresh green leaves off the tree itself: these must have been plucked that same morning; for some, which I put into my collecting-box, were quite hard and dry in the evening. This puzzled me not a little; for it looks as if the bird relined the nest every morning, as the leaves would not remain fresh over the day. In diameter the nest was two spans and a knuckle ($19\frac{1}{2}$ inches) outside, and just one span ($9\frac{1}{4}$ inches) inside, not much depressed inside, and rather bulkily built. In the foundation of the nest itself were two nests of *Passer hispaniolensis*, neither of which, however, contained eggs, the one being only half finished.

In the branches close to the eagle's nest were several more sparrows' nests; and in a rotten limb a few feet below was a new nest of *Picus minor*, and close to it an old nest of the same bird. The eggs of *Aquila pennata*, which are now (with the exception of the nest-stains) pure white, were, when quite fresh, white with a faint greenish tinge. In shape and size they much resemble the eggs of *Astur palumbarius*; but the shell is somewhat more coarse-grained. The above-mentioned

eggs were quite fresh, one of them having probably been laid the previous day. Having rested myself and scribbled down the above notes, I descended the tree, getting down with much greater facility and speed than I ascended. Manuel had gone off; so I sat and waited for him, and in the meantime noted down the colours of the cere, iris, &c., of the bird itself, which I copy as follows:—Cere and feet light wax-yellow; claws black; beak at cere light blue, darkening towards the tip into a dark horn-blue colour; iris light brown.

Having done this I sat down and watched what birds were to be seen. In the distance I could hear the “hoop, hoop” of the hoopoe; and a roller came and perched on a tree not far off. Before long *Picus minor* made his appearance, and seemed not a little satisfied that his home had remained undisturbed. High above me the mate of the wounded eagle was circling, keeping, however, so far off that there was no chance of obtaining a shot at him. After waiting a short time I heard some one pushing his way through the brambles; and soon after Manuel appeared, bringing with him a nest and four eggs of *Fringilla carduelis* which he had found. He proposed that we should skirt along the river-bank, and thought that he knew of a place where we might find *Caprimulgus ruficollis*. We were, however, not fortunate enough to find any, although we searched carefully for some time. At one place on the river-bank we found a colony of *Merops apiaster*, numbering some two hundred or three hundred, preparing their nests in a sandy bank, but we were too early to find any eggs.

After walking along the river-side for nearly an hour, and finding three nests of *Milvus migrans* and two of *M. regalis*, we saw, in a huge old white elm tree overhanging the river, a nest which Manuel assured me was that of a booted eagle, and which he thought probable might contain something. We pelted the nest for some time, but no bird left it; and getting tired of pelting, I at last fired a charge of dust-shot at the nest, with, however, no effect beyond that of driving out several sparrows, which evidently had nests in its foundation. I therefore concluded that there was no bird on the nest, and proposed that we should search further; but Manuel refused, saying that he thought it worth while to climb up to the nest, it being his turn.

The tree was so bulky that he could not climb up the trunk; but with my assistance he managed to reach the first branch, which was not far from the ground. Here he was again unable to climb up the trunk, and had to go to the end of a branch, and pulling down the branches above dragged himself up by them. However, to cut matters

short, he succeeded after some time in climbing to the limb on which the nest was placed, and then, to my great astonishment, out flew the eagle, which had sat quiet during the whole time we had pelted and fired at the nest. Manuel soon reached the nest, and reported that it contained two eggs, and in structure, &c., was similar to the last nest, being also lined with fresh green leaves off the same tree in which the nest was placed, some of which he threw down for me to examine. Just below, in a hollow hole, was a nest of *Strix flammea*, but Manuel could not get at it. The old bird flew out and I shot it. In the foundation of the eagle's nest were three nests of *Passer hispaniolensis*, one of which contained five and another six eggs.

Manuel had great difficulty in descending, and in one place slipped, unfortunately smashing one of the eagle's eggs in such a manner that we had to throw it away: these eggs were slightly incubated. During the whole time that Manuel was in the tree, the eagles circled round above, far out of shot; but as we were going away the female flew so close that Manuel shot her, which I was sorry for, as I did not wish her to be shot. As it was we did not get her, as she fell into the river and was carried down by the current.

It being now late in the afternoon we turned our faces towards the railway station, taking, however, another route back, in hopes of finding another nest of *Aquila pennata*, but met with nothing, excepting one nest of *Milvus migrans*. We saw a black stork (*Ciconia nigra*), several kestrels, three or four scops owls, many serinfinches and goldfinches, woodchats, bee-eaters, and other common birds, but nothing of note,

H. E. DRESSER.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from Zool. S. S. 692.)

MARCH, APRIL AND MAY, 1867.

Pied Wagtail.—Notwithstanding the intense severity of March, a severity unprecedented even on our bleak east coast, there was a very considerable arrival of these hardy little birds on or about the 28th of March, the same day of the month on which I registered their appearance last year.

Wheatear.—March 30th. First appearance. Several seen on the 2nd of April. I believe it is Macgillivray who mentions the unusual

circumstance of a wheatear perching on a tree. On the 13th of April I observed a male of this species sitting on the topmost twig of a fine old hawthorn; it then flew across the road, perching again on the opposite hedge-row: its next flight was to the top of a cottage chimney.

Golden Plover.—April 4th. Last seen in the marshes.

Chiffchaff.—April 10th. First seen and heard.

Chimney Swallow.—April 14th. Two seen; comparatively few, however, arriving in this neighbourhood before the last week in April.

Dotterel.—April 15th. When crossing some fallow land near the Humber to-day I put up a dotterel: it rose very reluctantly, flying a few yards and again seeking the shelter of the rough land, cowering on the shelter-side of an upturned furrow, evidently unwilling to face the storm of sleet then careering across the marshes. I rode up within two yards before it again took wing, drifting away with the storm, its shrill and melancholy whistle heard long after it was lost to view in the driving sleet. This is the only occasion on which I have seen a dotterel in our North Lincoln marshes in April, invariably making their appearance, in those years when they do visit this neighbourhood, during the first week in May. Very few of this species have this year been seen in this district. On the 7th of May I walked for some hours across the marsh on the look out for dotterel, requiring a pair for preservation. After a long search I found a small flock of six in the centre of a grass field, and presuming on their well-known tameness walked up within easy shot, and then biding my time till I got two in line killed them both; and have no doubt should have had little difficulty in shooting the remainder, as after flying round they again settled near the same place. My specimens proved a male and female, both in beautiful plumage, and very fat. I believe the late Mr. Wheelwright is quite correct when he says the female is "generally larger and handsomer than the male." Montagu says that in the female the "white line on the breast is wanting." This is not the case, however; both male and female have the white belt across the breast, but in the female it is less distinctly marked.

Martin.—Has any reader of the 'Zoologist' remarked any scarcity of martins? Up to this time, May 21st, I have seen very few,—none in this parish,—although several pairs of these little birds breed every year about my house and outbuildings, and are usually plentiful in the neighbourhood. On the 22nd of April I saw martins flying over the

Don, near Doncaster, and again on the 19th of May several at Thoresby Bridge, about eight miles from this place. These are, however, the only instances in which I have seen any, although daily on the look-out for them.

Tree Pipit.—April 16th. Seen and heard.

Yellow Wagtail.—April 17th. First appearance.

Willow Wren.—April 19th. First heard.

Redstart.—April 22nd. First seen near Barnsley, Yorkshire. I never saw the redstart, except on one occasion, in this parish, on October 8th, 1863, when I shot one amongst some osiers near our trout stream. I see, on referring to my note-book, it was at the time in company of the common whitethroat and willow wren. Redstarts are occasionally met with in the neighbourhood of the Brocklesby woods and plantations, but are considered rare birds.

Whitethroat and Lesser Whitethroat.—April 23rd. First seen. (South Yorkshire).

Common Sandpiper.—April 22nd. First seen.

Whinchat.—April 25th. First appearance.

Cuckoo and Sedge Warbler.—April 29th. Seen and heard.

Whimbrel.—May 1st. First appearance on their passage northward.

Gray Plover, Godwit, Knot, &c.—There is one place in this parish, a lonely and quiet spot, a very favourite station of mine for watching the manners and customs of our shore birds, and I seldom at this season visit it without finding there some one or other of the numerous species frequenting this coast, and many a pleasant hour I have passed there. Near this spot a small stream enters the Humber, after flowing for some short distance across the tide-washed flats, and here even at dead low water, owing to a slight depression in the fore-shore below the level of the surrounding "flats," the tide seldom recedes more than five hundred yards from the foot of the embankment, a space which a good field-glass annihilates. On the 9th of May I was unusually fortunate, finding several species feeding about the mouth of the old creek. Stretched on the bank-top and cautiously pushing my telescope through the long grass, I enjoyed for an hour an ornithological treat, which in my idea the best arranged museum of stuffed skins would fail to give. The first to take my attention was a group of gray plovers, some few still in transition plumage, the bulk, however, magnificent birds in full summer plumage, the upper parts chequered pure black and white, the lower intense black, bordered with white,

every feather distinct in a blaze of sunlight, for it was a glorious day; even the gray river and its muddy flats were flooded with bright light, the little ripples on its oily surface belts of liquid fire. What a wild restless beauty there is in the bold black eye of these birds! little indeed do they imagine they are the subjects of so close a scrutiny, or they would not sit so quietly within range of our telescope. Just beyond the gray plovers four or five whimbrel and two godwits were feeding: after a patient investigation of these latter birds I feel convinced they were the blacktailed godwit: directly I turned the glass upon them it struck me they were not our common bartailed species. They are a much larger looking bird; in fact, I could perceive very little difference, if any, between them and the whimbrel in point of size, and the white streak or mark above the eye is much more apparent than in the bartailed. The lower part of their tails was certainly all black, the upper part white. These godwits were still in the transition plumage. They are most energetic feeders, walking slowly close to the edge of the ripple, sometimes in the shallow water, sometimes out, but all the time perpetually and rapidly driving their long bills deep into the soft ooze, first to left then to right, up to the forehead every stroke, as if feeling for their prey, and in some instances thrusting the head itself under water. They gave me the idea of the motions of a man spearing eels, thrusting his "gad," in a hap-hazard manner, into the mud. The whimbrels are far more circumspect in their movements; they also bore to the extent of the bill, but they do so slowly and deliberately, and at short intervals, walking some distance between the borings, and then thrusting down as if *they knew* they should find a sandworm underneath. A little higher up the "flats" a party of knots were feeding. I was greatly surprised to see knots on the fore-shore as late as the 9th of May, as they usually take their departure from the Humber district early in April. These knots had not fully acquired the ruddy nuptial plumage, and were all more or less in transition plumage. Just off the mouth of the creek a beautiful male black scoter was diving, spending more time under water than above. I know the river at this spot is not more than six feet deep, yet this bird would remain underneath from thirty-five to fifty seconds, often coming up at some distance from the point of immersion; in the act of diving the tail was spread out like a fan. A short distance lower down the stream was a female scaup (*Fuligula marila*). I have repeatedly seen male scaup near this place late in the season, once indeed a single bird as late as the 24th of May. Is

there any well-authenticated instance of the scaup remaining and breeding in Great Britain? A labourer who is employed throughout the year in the repairs of our embankments assures me that he has seen a pair of scaups and their young about this same place every year during the latter part of June, and he ought to know a scaup when he sees it. I have, however, so frequently on investigation found information of this description fail the test of practical inquiry, that I can place little or no reliance upon it, unless afterwards verified by personal observation. How often, after listening to some minute description of a bird, have I been led a wild-goose chase to inspect the rare capture, and in nine cases out of ten found some well-known species, for which the owner generally asked an extravagant price.

Redshank.—May 15th. Observed a pair of redshanks to-day, at the foot of the embankment, in full summer plumage.

Swifts.—May 13th. First appearance; several seen.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
May 25, 1867.

Ornithological Notes from West Sussex.

By W. JEFFERY, jun., Esq.

(Continued from S. S. 732).

FEBRUARY—MAY, 1867.

Common Skua.—February 6th. To-day a fine example of the common skua was procured at Chichester Market, for the Museum of that town, by the curator: I learned that it had been captured alive at Littlehampton, whilst fighting with some other bird, in conflict with which it had lost an eye; what the other bird was I could not ascertain.

Thrushes Singing at Night.—In the 'Field' newspaper, dated February 23rd, 1867, a correspondent signing himself "Fagus" writes that he heard several blackbirds singing on the night of February 17th, and the editor states that he has received two other notes on the same subject. Now I happened to be out walking about eleven o'clock that night, and remarked that numbers of blackbirds and song thrushes were singing continuously; it was, in fact, quite a concert, and I made a memorandum of it in my note-book before having seen mention of it

in the 'Field.' We know that many birds have a habit of singing at night, some all the night through, during the summer months, and thrushes perhaps occasionally amongst others, but that it should have been particularly noticed in different localities that same night is rather curious. It was certainly a moonlight night, but not an unusually bright one. Did any other reader of the 'Zoologist' notice this singing on the night in question?

Gray Wagtail.—March 14th. A gray wagtail has frequented this immediate neighbourhood for several weeks; as yet, however, the black patch on the throat is scarcely beginning to show. But a pair of birds newly arrived have the patch nearly perfect and the yellow part much brighter than the first-mentioned bird, which is probably a last year's bird. The same thing is frequently noticeable in the pied wagtail. Those birds which winter with us, and some braved the severe frosts of January last, do not assume the summer plumage by the time that others arrive from the south in that state. A company of about thirty pied wagtails, the first arrivals, seen on the 15th of March, and meadow pipits passing northwards on the 16th. Through the kindness of a friend I have just learned that the gray wagtail does occasionally remain to breed in Sussex, two instances of its having done so being known to him, and in addition to this I have myself (June 1st) just found a nest of its young near Petworth. The sides of streams would seem to be the sites chosen, and in the latter case a hole in a sandbank by the side of a waterfall.

Peewit.—March 17th. The cold N.E. winds and sharp frosts induce the peewit again to travel southwards in flock.

Tawny Owl.—March 21st. While the peewit is flying from the second winter the tawny owl is nesting. Four eggs, partially incubated, were brought me to-day from a hollow yew-tree.

Oystercatcher.—With us in the south the oystercatcher is a scarce bird; not breeding here, it is only met with when migrating southwards in autumn or northwards in spring; but they seem to have been unusually plentiful this spring. I obtained one in good plumage on the 20th of March; and the same day nine others were brought into Chichester for sale; they were shot at West Wittering, and were, I am told, all killed at one discharge of the gun. Subsequently four others were sent from the same place, and the thirteen cut up into plumes for the ladies.

Spring Arrivals.—One would imagine the weather to have been any thing but favourable for the arrival of our summer visitants, yet some

of the earlier birds were here in good time. The chiffchaff arrived in tolerable plenty on the 21st of March, and several were seen each succeeding day. Wheatears made their appearance in goodly numbers on the 24th; perhaps even before this, but I had no opportunity of visiting the coast, near which these birds usually take up their quarters on their first arrival. On the 2nd of April I heard a wryneck, and on the 5th shot a male blackcap and a willow warbler. With regard to some of the later birds, it is perhaps difficult to chronicle their dates of arrival correctly; the weather, in the first place, not being very inducing to one to spend much time in out-of-door observation, and, secondly, not likely to tempt them either to show themselves or make themselves heard. On the 7th of April I first saw the swallow, and the next day two others. Two specimens of Ray's wagtail seen on the 8th, and on the 13th flights of from ten to twenty seen passing N.W., at intervals from eight to half-past eight P.M.; wind moderate from S.W. A male redstart seen on the 9th: it is remarkable that the female redstart is scarcely ever seen passing this way during the vernal migration. The nightingale, true to its time, on the 12th. Female blackcap on the same day. House martin on the 16th. Tree pipit on the 17th. Whitethroat on the 19th. Sedge warbler on the 20th. Lesser whitethroat on the 21st. Cuckoo and sandpiper on the 23rd. Grasshopper warbler and nightjar on the 24th. Landrail on the 26th. Dove on the 27th. Wood warbler on the 28th. Swift on the 6th of May. Redbacked shrike on the 9th of May.

Woodpeckers.—Woodpeckers, as a rule, are a scarce bird here, and it is not often that we get an opportunity of observing their habits, but to-day (April 28th) I observed two species in close proximity; a green woodpecker hopping on the ground exactly after the manner of a missel thrush, three hops and then the head jerked up: the food of this bird consists principally of the large wood ant. The other was an example of the lesser spotted woodpecker: this bird has a habit of making a singular vibrating noise, by tapping its bill against a dead branch of a tree about eight or ten times in rapid succession.

Dunlin: Variation in Length of Bill.—May 13th. Examined thirteen dunlins, with a view of ascertaining, if possible, whether the length of the bill, which varies greatly in many of the waders, be in any way dependent on the sex. For this purpose I divided the thirteen into two lots, six with longer bills and seven with shorter, and, with the exception of one individual with bill of moderate length, this division proved correct as to sex. Seven were females, with the bills

varying from barely one inch and a quarter to barely one inch and a half, and six males with bills from one inch to one inch and a quarter bare. If other ornithologists would make similar examinations of any of the waders which may pass through their hands, we shall perhaps be able to arrive at a proper conclusion in the matter. The bill of the bartailed godwit varies from three inches to four and a half inches, and my impression is that, as a rule, the female is rather the larger bird and has the longer bill. In plumage the male dunlin is redder on the back than the female, and has the black breast rather more perfect.

W. JEFFERY, JUN.

Ratham, Chichester, June 8, 1867.

Arrival of Summer Birds at Shooter's Hill and Neighbourhood.

By MATTHEW HUTCHINSON, Esq.

ON the 4th of March, 1867, while watching half-a-dozen longtailed tits at the edge of the wood east of Shooter's Hill, and carefully examining through a glass a fine male perched on a twig and snapping at the gnats swarming three feet from the ground, a bird alighted just above him, and I at once saw it was the chiffchaff: there were its dark legs and light lines above and below the eye: its feathers were stuck out, and it looked dull, cold and uncomfortable. A marsh tit now came to the same hazel-bush, and they flew off with the longtailed tits into the wood. The male longtailed tit was rich in colour, and I fancy may be mistaken by many for the Dartford warbler, which I have not seen, and never expect to see.

Although we had sharp cold weather with snow on the 6th and 7th, a gardener on the top of Shooter's Hill, on the 8th, heard a chiffchaff chipping away in the top of a tree. The longtailed tits appeared early and numerous, then came the tomtits, then the great tits, a few marsh tits, and now and then a cole tit.

On the 16th of March there were more chaffinches. From the 14th to the 21st we had cold N.E. winds with snow-storms.

On the 26th of March I saw a chiffchaff, so brilliant in colour and so yellow underneath that I mistook it for a willow wren. It was catching gnats like a flycatcher, and by dint of patience and perseverance I at last got the light on its dark legs, and saw distinctly it was not the willow wren, but the chiffchaff. I have watched the

willow wrens for years, have frequently in the early spring looked through the glass at the chiffchaff and willow wren perched on the same low bush, have seen the difference in the colour of their legs, have had the willow wren in captivity, and have got one stuffed on the mantel-piece, and yet I felt confident this chiffchaff was a willow wren : so much for judging by sight without hearing. On the 27th the chiffchaff was in the castle wood catching flies from the top of a barbarous black wooden fence, some six feet high, on the east of the path through the wood, the tenter-hooks bothering its little legs sadly ; by which said frightful fence the divorce judge has divorced the public from the enjoyment of the better half of the castle wood, in which for the last thirty years I have passed many of the pleasantest hours of my life, listening to the sweet songs of the beautiful birds as they sang their Maker's praise on returning home after travelling thousands of miles.

April 3. Saw three tree creepers, one male beautifully marked ; watched one clear out a hole in the decayed branch of a tree. This day I first noticed the dark little spiders running among the dead oak leaves ; the wood ants were also out. I believe these spiders and the red ants form the chief food of the nightingales on their arrival.

April 10. Examined a beautiful marsh tit while suspended at the end of a long thin spray of birch ; but for the black on the nape of his neck and his hanging head downwards, he would readily be mistaken for a blackcap. It is possible the blackcap said to be seen in winter may be the marsh tit.

April 17. I saw a swallow shoot up the hill, take a few turns round the summit, to make sure of his whereabouts, and then dart off towards Eltham. He looked as thin as a wafer, and floated on the air like gossamer. It was a dull misty day, the Norwood hills invisible. Directly after I got a good view of the wryneck, clearly seeing its front and back toes. This morning, about ten, the gardener heard the nightingale singing famously in the top of the wood. The full moon appears favourable to migration. Saw several chiffchaffs.

April 18. Saw two willow wrens catching flies from the rails round the deodar in Greenwich Park, and then feeding on the ground underneath the branches. Saw their yellow legs, and soon saw them singing.

April 19 (Good Friday). Saw a willow wren singing in the trees on the top of Shooter's Hill. A tree pipit flew up into the same tree, sat some time examining the country, and then off for Essex. Saw three

swallows about the hill; and three sand martins and a pair of swallows hawking about the pond and farm-yard in the fields between the wood and Eltham. One swallow was flying over Eltham. On going home, at 7 P. M., a fine male swallow shot across the road, skimming just above the hedges, on a N.W. passage.

April 23. Saw a whitethroat on the rails in Greenwich Park: he soon got inside a deodar, plumed himself, and rested.

April 25. Watched a hen whitethroat feeding in a hedge, and plenty of grubs she got. Saw two sand martins and two swallows on the round pond in Blackheath Park; and then saw two sand martins in the air, flying N.E. Saw a willow wren and a wryneck.

April 26. Saw a fine redstart in Greenwich Park, his plumage much brighter than last year; his white forehead and black throat contrasting brilliantly: later in the day I saw the female. The habits of the nightingale, the robin and the redstart are much alike. Saw numbers of willow wrens busy with the opening blossoms and leaves of the trees; they were all over the Park: those I could fix the glass on were females. In the evening the redstart had got a fine bright male wryneck feeding on the ground with him. This day, I never saw so many birds, willow wrens, tits, redstarts and wryneck feeding on the ground: the rain had beaten down the flies. The next day I could not see a bird in Greenwich Park, but the everlasting everywhere sparrow and a few starlings.

April 29. In a high thick thorn hedge, 150 yards long, I saw within ten minutes, a hen blackcap, a whitethroat, several willow wrens, an oxeye, a pair of greenfinches and a nightingale. I called the nightingale, and he came hopping into the road, and though he perched within a dozen yards of me and sang stoutly, his throat shaking again and again, I could not hear a sound. I walked away sad and melancholy.

April 30. Found the lesser whitethroat, as usual, threading the intricacies of a thick hedge. He appears to get his food in the centre of the hedge, seldom coming outside. I used to detect him by his repeated soft, clear, whistle, always heard before he was seen: he ought to be called, as in France, the "whistler."

May 3. More swallows located, and more whitethroats and willow wrens about. In the castle wood saw a fine blackcap, a tree pipit and a cole tit. A fine warm day.

May 4. Through the fields to Eltham. Saw nothing but whitethroats, all in the old localities, scarcely a hedge without them: two

were chasing each other incessantly across the hedges of a green lane, then up into a tree, then off again as quick as thought.

May 5. Nine sand martins at the round pond in Blackheath Park. At 5.30. P.M. saw two house martins in front of the gravel-pits by Vanbro' Park. Then came a pair of sand martins. In half an hour there were four house martins, then six, and about 6.45. P.M. I counted nine house martins. A fine day, wind S.E.

May 6. A fine warm summer day, with a soft sweet south-west air and clear sky. Through the fields to Eltham. Saw one house martin. Swallows about in numbers. To Mottingham. Saw a beautiful tree pipit feeding quite close to me on a bare railway-bank; its colour was all the shades of drab: its tail kept moving like a wagtail. It flew into a tree and sang. This is the connecting link with the wagtails. On returning to Eltham the swallows were chasing each other in pairs, and perching in pairs on the chimneys. While looking at them in the air, about 6 P.M., I noticed one larger than usual, then came a side roll and a turn, and there were the cheese-cutting wings of the swift. I watched him soaring over Eltham for fifteen minutes, then saw two; in ten minutes more there were four swifts. Saw a pair of house martins and about twenty swallows. None of the Eltham folks had seen the swifts; one, who had not seen me for a year, and felt disappointed at my first seeing them, told me I must have brought them with me.

May 8. At Kidbrooke Farm a yellow wagtail flew by me: I could not find it again. It is some twenty years since I saw a yellow wagtail in the same field. Although I got into the whins on the west face of Shooter's Hill as often as bad weather and worse health would permit, I did not meet with the only whinchat I have seen this season till this day. In the middle of the day, all along the noble trees in Eltham Park, I tried to find the flycatcher. On coming away, at 5 P.M., near the entrance, I saw a bird dart out of a lime tree for a fly: I waited till it flew to a bare branch, up with the glass, and there was the dapper, dark-eyed little flycatcher. I saw him dart down on his prey in the grass, and then take a few more flies from the trees. No bird makes so quick a turn and so acute an angle as the flycatcher. One swift with two house martins were hawking very high over Eltham.

May 10. Saw a flycatcher under a few elms, where I often watched him last year.

May 13. Never saw so many sand martins in this neighbourhood; at least a dozen were over the round pond, and nine over the long

ponds in Blackheath Park. The railway-banks, where they breed, have brought them. Watched for a long time a pair of splendid old swallows, in fine condition, with shining blue-black backs, and rich chestnut throats, hawking under the lee of a hedge; they frequently came within a yard of my face.

May 14. Cold N.E. wind. Swallows fluttering in the grass and taking insects off the buttercups. Sand martins innumerable about all the ponds. I have in vain sought for the garden warbler. It was gratifying to see so many swallows again in Eltham, the oldest village in the neighbourhood, where I generally first met with them, and where last year I went continually and could see none of the tribe. I could not account for it, for they were located all round Eltham. I thought possibly pots having been placed upon the old massive brick chimneys might have sent them away. At last I remarked the drains in Eltham were all open, and being connected with those two rivers of death flowing on each side of the Thames, carrying off the water and leaving the condensed foul air to poison us. I had been reading and re-reading that wonderful production of the human mind, *Macbeth*, and was forcibly struck with the truth of these lines:—

“ This castle hath a pleasant seat; the air
Nimble and sweetly recommends itself
Unto our gentle senses.
* * * This guest of summer,
The temple-haunting martlet, does approve,
By his loved mansionry, that the heaven's breath
Smells wooingly here: no jutty, frieze,
Buttress, nor coign of vantage, but this bird
Hath made his pendant bed and procreant cradle:
Where they most breed and haunt, I have observed,
The air is delicate.”

That the air of Eltham is good, the tomb of Elizabeth Armstrong, who breathed it at one hundred and eleven years of age, testifies. I concluded it must have been the bad air of the drains that, in 1866, had driven the swallows and martins out of Eltham.

Chiffchaff	-	-	March 4	Whitethroat	-	-	April 23
Nightingale	-	-	April 17	Redstart	-	-	„ 26
Swallow	-	-	„ 17	Lesser Whitethroat			„ 30
Willow Wren	-		„ 18	House Martin	-		May 5
Sand Martin	-	-	„ 19	Swift	-	-	„ 6
Tree Pipit	-	-	„ 19	Flycatcher	-	-	„ 8

The birds are late this spring, those of slower flight from ten to fifteen days.

MATTHEW HUTCHINSON.

Blackheath, S.E., May 22, 1867.

Ornithological Notes from the Isle of Wight.

By Captain HADFIELD.

(Continued from Zool. S. S. 743.)

APRIL.

Martin.—Though not observed here till about the middle of the month, two or three were seen on the Downs near Portsmouth, on the 1st of April—the earliest date of their appearance that I ever remember.

Great Northern Diver.—April 6th. One seen off Shanklin to-day. I had not heard of its occurrence all through the winter; but then, owing to the boisterous weather, there was little boating going on.

Redthroated Diver, &c.—There are still a few of these divers lingering on the coast; one was observed to-day (April 6th) in Sandown Bay, but comparatively few have been met with this season. A black scoter and a few wild ducks seen off Shanklin during the week.

Rook.—Though there were well-fledged young by the end of March, a pair of rooks did not commence building till the 5th of April; the nest was completed in about ten days, but it was of very small size. When birds are late in building or rebuilding, the nests are generally small or loosely and imperfectly formed.

Cuckoo.—April 7th. The cuckoo was heard to-day in the Landslip. This is a few days earlier than usual.

Swallow.—First seen on the 10th of April (the same date as last year). Thermometer 48° at 9 A. M.

Nightingale.—The song of the nightingale was heard, at Steephill, by the middle of the month, but in the neighbourhood of Brading—a favourite resort of the species—it was noticed a few days earlier: I have already had occasion to remark that most of our summer visitants are first seen at the south-eastern extremity of the island.

Wryneck.—First heard at Easter.

Whitethroat.—By the middle of the month it had collected in

considerable numbers on our Downs, where they resort to breed among the furze-brakes and stunted thorns and briers.

Magpie, &c.—April 23rd. A magpie's nest found to-day containing two eggs; a blackbird's, with a brood half-fledged; and a robin's nest without eggs. March having proved unusually cold, the thermometer ranging but little above the freezing-point up to the 21st, most species are late in breeding.

Ring Ouzel.—April 24th. One seen at Bonchurch by a man well acquainted with the species, its song having attracted him to the spot.

Lesser Whitethroat.—April 26th. First seen.

Wood and Willow Wren.—April 26th. Both seen in the garden to-day; the latter in considerable numbers; all apparently newly arrived, for they were very sluggish. Neither species, that I am aware of, breed in the Undercliff, but merely pass a week or two with us before proceeding inland; and the same, I believe, may be said of the chiffchaff, never having found its nest either.

Titlark and Linnet.—April 26th.—A nest found with half-fledged young. Brown linnet still gregarious, but this species is a late breeder.

Pied Wagtail.—April 28th. A small flock observed.

MAY.

Yellow Wagtail.—I hear that a small flock was met with about a pond near Newport, a few weeks since; two were shot, one a very handsome male, in perfect plumage, the yellow being very bright.

Redshank.—A bird of this species was shot, during the winter, on the banks of the Medina. It is a handsome specimen, with the tail beautifully barred.

Bittern.—A bittern was shot in our marshes during the winter.

Great or Norfolk Plover.—Have lately seen a fine specimen, shot some months ago; had previously heard of one being shot, some years ago, in a turnip-field in this neighbourhood.

Jackdaw.—A jackdaw, having an elongated and greatly decurved bill, giving it a chough-like appearance, has been lately shot. The plumage is of the usual colour.

Martin.—Commenced building early in the month; on the 8th saw a nest that had been begun some days. There will be a general rebuilding this season, the severe frost having caused the old nests to crumble away and for the most part disappear.

Spotted Flycatcher.—Not observed in this neighbourhood till the middle of the month.

Swift.—Though not noticed here till the third week in May, a few were seen about the Shanklin Cliffs early in the month.

Linnet.—May 24th. A small flock observed.

Common Tern.—Heard of a pair being seen about Bembridge Harbour by the middle of April, which is somewhat early.

Peregrine Falcon.—May 31st. In walking to-day from Sandown to Bembridge, I started a peregrine from out a hole or fissure in the loftiest part of the Culver Cliff, but not till numerous stones had been rolled down. As usual they have chosen the most inaccessible part of the cliff, beneath a jutting crag; the descent from which would be awkward, if not dangerous. Its flight was rapid and direct, neither turning to the right or left till well out to sea. Though I watched for some time it did not reappear. From its apparent smallness I took it to be the male bird, but these lofty cliffs so dwarf everything that one may readily be deceived as to size; the house martin, for instance, appearing no larger than the sand martin; the herring gull, too, looked small, though its figure was well defined as it stood erect on a prominent semi-detached peak, as if chiselled out of the chalky face of the cliff, with the sea in the background. Three distinct notes were heard, one as of laughter: another, a shrill cry or scream not unlike that of the human voice; the third, an angry, reiterated, whistling, "whil! whil!" which so alarmed a little terrier, as they flew around in a threatening manner, that he could not be induced to face them, or join me as I sat on the edge of the cliff. I am sorry to announce the capture of a female peregrine, it having been trapped in a gin some weeks since, at the Freshwater Cliffs. It was preserved alive, and had been offered to my informant for sale.

Bluethroated Warbler.—None having been observed for some time it is thought that they may have been captured or shot, and I am blamed, I fear, for having, by pointing out their haunts, caused their destruction. Bnt, if dead, I think it more likely they may have perished from cold, the winter having been unusually severe in the Undercliff. I picked up several dead thrushes in the garden, beneath an ivy-clad wall, from which they had apparently fallen while roosting.

HENRY HADFIELD.

Ventnor, Isle of Wight, June 7, 1867.

Rats on the Coast.—In walking along the Dorsetshire coast between Encombe and Kimmeridge, a few days ago, I was surprised to find that a colony of rats had taken up their abode among the shingle. The coast is bounded by steep cliffs, perfectly inaccessible (even to a rat) from the land, except where the chines run down to the sea, and the habitat of the rats is about a mile from the nearest point of approach from the land. The entrance to the holes in the shingle, which are close to high-water mark, seems to be carefully selected where three large pebbles happen to be so placed as to form a sort of cross lintel and door-posts. At first sight they have all the aspect of an artificial arrangement, but I think they have been merely selected from among the naturally placed stones as they lie on the beach. This is evidently a permanent colony, as the neighbourhood of the holes is strewn with fragments of partly consumed seaweed and other marine exuviae, upon which the rats must exclusively subsist. Did they emigrate to this curious retreat from the land side, or are they the remnants of a shipwreck?—*George Maw; Benthall Hall, near Brosely.*

Badger at Cockermouth.—In the month of February last a large and fine specimen of the badger was taken alive in a wood near Cockermouth, by R. Chapman, keeper to Major Green Thompson. It is still in the keeping of the person who caught it, who takes great pride in showing it to strangers. From whence or how it has come into this neighbourhood there is not the slightest evidence to show.—*George Mawson; Moor Side, June 15, 1867.*

A large Otter.—On the 8th of March a large otter was shot on the banks of the Loddon: it had been feeding on a chub, the tail end of which was left: it weighed 23½ lbs. Otters are becoming very scarce round here; they are so sharply looked after.—*C. E. Stubbs; Henley-on-Thames.*

Errata.—In my notes on the roe-deer, S. S. 779, line 13, for “Dr. Tiegler,” read “Dr. Ziegler,” and at p. 781, third and fourth lines, transpose “fig. 5” and “fig. 6.”—*Edward R. Alston; 205, Bath Street, Glasgow, June 7, 1867.*

Ornithological Notes from Aldeborough.—On the 2nd of May I found, near Aldeborough, a snipe's nest, containing four eggs. On the 15th of May I found, on some marshes at Aldeborough, another snipe's nest, with four eggs, most probably the same pair, for they were within two miles of each other. On the 16th of May I found a tree sparrow's nest in a sand martin's hole, containing five eggs, three of which I have in my possession: they are much smaller than those of the house sparrow: the nest was in no way like that of the house sparrow, being made altogether of moss and wool. A good specimen of the little gull (*Larus minutus*), in summer plumage, was shot on some marshes near Aldeborough: this bird is a great rarity here, never having been shot or even seen before; it is now in the possession of Mr. F. Hele, of Aldeborough.—*E. C. Moor; Aldeborough, Suffolk, May 24, 1867.*

Dates of Arrival of the Summer Migrants near Wakefield in 1867.—The wheatear made its appearance at the end of March.

April 9. Heard tree pipit.

„ 16. Saw yellow wagtail.

„ 18. Heard willow wren; saw swallow.

„ 19. Heard chiffchaff.

April 23. Saw cuckoo?

„ 24. Heard whitethroat.

„ 26. Heard blackcap.

„ 28. Heard whinchat, sedge warbler and wood warbler; and saw sand martins numerous on the River Calder.

May 4. Heard cuckoo.

„ 6. Heard lesser whitethroat.

„ 16. Heard corn crake.

„ 19. Saw flycatcher.

—*George Roberts; Lofthouse, near Wakefield, May 20, 1867.*

White Varieties of Birds' Eggs.—In addition to the list of blue and white varieties of birds' eggs mentioned in the 'Zoologist' (S. S. 754), I have a nest of four white greenfinch's eggs. The four eggs were out of one nest.

Osprey in Norfolk.—A magnificent adult female was killed on the 11th of May at Brickling, near Aylsham; it measured twenty-three inches and a half from beak to tail, both included, and five feet seven inches across its fully extended wings to tip of each. The ovary contained a large cluster of eggs, six or seven of which were nearly as large as common peas.—*T. E. Gunn; 3, West Pottergate, Norwich.*

Rock Thrush, Hoopoe and Pied Flycatcher in the Isle of Wight.—On Tuesday, the 14th of May, I was in company with Mr. Brown, of Tongham, near Aldershot, and Mr. Gould, on our downs at Freshwater, shooting herring gulls. When near New Ditch Mr. Brown saw a bird which he stated to be the rock thrush, and from the description he gave I had no doubt upon the matter, though I felt anxious to see so rare a species, to clear up any doubt with respect to it. My anxiety on this point was soon set at rest, for, as we were standing looking at the splendid arch in Scratchell's Bay, out came one of those beautiful birds from a niche in the rock, and although we could see the colours distinctly there was not time to fire at it, as it disappeared over the cliff: Mr. Bell, at the Needles, had seen the birds before, as also had a person of the name of Larkham, and both gave a good description of them. Mr. Brown fired at one after this, but missed it; there cannot be a doubt as to the species: there are several persons trying for them, and I trust we may get one, so as to authenticate the species. I have obtained a fine pair of hoopoes and a pair of pied flycatchers.—*H. Rogers; Freshwater, Isle of Wight, May 18, 1867.*

The Bonny wee Blue Bird.—The following ballad was written on the 12th of November, 1866, by Mr. Charles Duncan Cameron, British Consul, in Magdala Prison, Abyssinia:—

“Hey! bonnie blue birdie, noo, whither awa’,
 Wi’ a’ yer gay plumage sae kempit an’ a’?
 I’m gaun to my sweet luvie wha ca’s frae yon tree,—
 Sae ye’ll bide but a blink, I’ll be back in a wee.

But, tell me, fair stranger, or e’er I may gae,
 What ’tis gars ye loe a’ the little birds sae?
 Ye’ve bigg’t wi’ yer ain hands this fountain sae bricht,
 An’ feed us wi’ sma’ seed, frae morning till nicht.

Ah! bonnie wee bird—but this heart it might break,
 Did I tell a' the thochts that such speerins awake;
 But, bathe in my fount still, and fill your beak, free,
 A' my guerdon's to watch thee, and feel ye loe me.

Kind stranger, ye're heart-sick, come fly to yon tree,
 And list to a sang frae my ain luv an' me!
 Ah! simple wee birdie,—that wad I richt fain,
 But our thochts they hae wings—'tis our bodies hae nane.

The bird and the bee may wander still free,
 And fill a' this soft air wi' sweet melodie;
 But we wha' are wingless, in chains we maun grieve,
 And sigh for our ain land, frae mornin' till eve.

“The bird alluded to is the little cardinal, smaller than our wren. It is found in hundreds about the country in Abyssinia. It has a soft, mouse-coloured coat, dashed with deep crimson, which changes at certain seasons for a mixed blue. The last amusement of the Abyssinian captives was to make a fountain (a very pretty one) for these birds, which are quite as tame and pert as our robins; and nothing could be pleasanter than to see them crowding to their bath, and fluttering and trimming their plumage in the water, of which they are exceedingly fond. They are, at least, prettier and more delicate pets than spiders and mice, which have so often furnished a resource to the listless prisoner, deprived of any other outlet to the “besoin d'amis.” The fountain has, on advice, been broken, lest the ingenuity displayed should excite too much admiration, and be pressed into State service; but a stone basin has been set instead for our favourites, and they are duly fed. They are so tame now that one can almost catch them with the hand.—*C. D. C.*” [Communicated by the Rev. Murray A. Mathew.]

Nesting of the Redstart in curious situations.—Of all the curious situations selected by birds in which to build their nests, no species, I believe, occupy more singular sites than our pretty summer species, the redstart or redtail. Several instances have come under my notice. On the 7th of May I saw a lad with an old battered and broken tin pail, in which was built a nest containing one egg only, quite fresh laid: he told me he found it laying on a heap of rubbish on Unthank's Road, near Norwich, and also that he found two other nests in the same spot, built in similar articles, but that they contained no eggs. The following day a friend of mine informed me of a pair of redstarts that had constructed a nest in the interior of an old boiler that was suspended from a wall in his garden: on the 14th of May it contained five eggs: he took much interest in watching the progress of the little birds, but was grieved on looking, two days afterwards, to find that some one had robbed the nest of its contents and driven the poor birds away.—*T. E. Gunn.*

Grayheaded Wagtail near Norwich.—On the 13th of April a beautiful adult male specimen of this rare species was killed in this neighbourhood: it was in company with a small flock of the common yellow wagtail, with several of which it was shot and sent to a friend of mine, who kindly presented to me this *rara avis*. Mr. H. Stevenson, in his ‘Birds of Norfolk’ (vol. i. p. 164), mentions but three well-authenticated previous instances of the occurrence of this species in this county.—*Id.*

White Eggs of the Yellowhammer.—Yesterday I found a nest of the yellowhammer containing two eggs snow-white and two of the usual colour. The bird was sitting.—*George Roberts ; May 19, 1867.*

Bramblings at Henley-on-Thames.—Bramblings have been unusually plentiful with us this season. I had several specimens brought me in March—*C. E. Stubbs.*

Siskins during the first week in March.—Mr. Stevenson mentions (*Zool. S. S. 728*) that some siskins were seen in Norfolk during the first week in March, and also remarks that it is the latest that he ever observed them. Perhaps he will be interested to hear that I saw some near West Drayton, Middlesex, on the 2nd of that month: they were feeding in some alder-trees, and were about twenty in number: I certainly never noticed them so late in previous years.—*F. D. Power ; 32, Queen Square, W.C., May 15, 1867.*

Golden Oriole at Scilly.—Three orioles (one in very bright plumage) have appeared together on the island of Trescoe, in the plantation of Mr. Smith, the lord proprietor, during the last few days. Mr. Smith reports to me that all the specimens that have been seen from time to time at Scilly have occurred at Trescoe, and one reason may be that in that island alone are there localities adapted, by the plantations, evergreens and flowering exotic shrubs on Mr. Smith's grounds, for the bird nesting and rearing its young. Mr. Smith will probably give them an opportunity of passing the summer unmolested, and testing his well-known hospitality.—*Edward Hearle Rodd ; Penzance, May 14, 1867.*

PS. To all appearance a male and female of the golden oriole have adopted the gardens at Trescoe as their summer nesting-place and nursery. They appear generally together, and up to last week were to be seen daily—as far as I can learn, with the usual indications of birds nesting.—*E. H. R. ; June 20, 1867.*

The Shama (Kittiacincla macroura).—The shama frequents the densest thickets, and is very partial to thick bamboo jungles. It is almost always solitary, perches on low branches, and hops to the ground to secure a small grasshopper or other insect. When alarmed it flies before you from tree to tree, at no great height. Its song is chiefly heard in the evening just before and after sunset: it is a most gushing melody, of great power, surpassed by no Indian bird. In confinement it imitates the notes of other birds and of various animals with ease and accuracy. It is caught in great numbers and caged for its song. Many are brought from the Nepal Terai to Monghyr, chiefly young birds. It is the practice throughout India to cover the cages of singing birds with cloth, and in some places a fresh piece of cloth is added every year. The birds certainly sing away readily when thus caged, but not more so perhaps than others freely exposed. The shama is usually fed on a paste made of parched chenna mixed with the yolk of hard-boiled eggs, and it appears to thrive well on this diet, if a few maggots or insects are given occasionally. It will also eat pieces of raw meat in lieu of insects.—‘*Birds of India,*’ vol. i. p. 117.

Indian Black Robin (Thamnobia fulicata).—Its familiar habits well entitle it to the name of Indian robin. It is mostly found about villages, pagodas, old buildings and mud-walls, often perching on the roofs of houses and tops of walls, and feeding in verandahs, or occasionally even entering houses. It is, however, not confined to the vicinity of houses or villages, but is very common on rocky and stony hills, and in groves of palmyra or date-palms. It is generally seen single or in pairs, feeds on the ground, on which it hops with great agility, frequently pursuing and capturing several insects before it reseats itself on its perch, either on a house or on a neighbouring tree

or bush. At all times, but especially when feeding, it has the habit of jerking up its tail by successive efforts, so as almost to overshadow its head. The male has a very sweet little song, which it warbles forth from the top of a wall or low tree, and it is occasionally caged. It builds among rocks, or in holes in houses or mud-walls; also low down on the stem of palm-trees, where the broken stalk of the frond juts out from the trunk: Burgess says, "under tussocks of grass." On one occasion a pair built their nest, at Jalnah, among a heap of stones raised from a well. It was being deepened, and they made their nest during the time the rock was being blasted, and continued their incubation until the young ones were hatched, when it was accidentally destroyed. The nest is made with grass, roots and hairs; and the eggs, four or five in number, are bluish white, spotted with purplish brown.—'Birds of India,' vol. i. p. 121.

Indian Tailor-Bird (*Orthotomus longicauda*).—The well-known tailor-bird is found throughout all India, from the Himalayas to Cape Comorin and Ceylon, and extending into the Burmese countries. It is most common in well-wooded districts, frequenting gardens, hedge-rows, orchards, low jungle, and even now and then the more open parts of high tree jungles. It is usually in pairs, at times in small flocks, incessantly hopping about the branches of trees, shrubs, pea-rows and the like, with a long reiterated call, and picking various insects, chiefly ants, Cicadellæ and various small larvæ, off the bark and leaves, and not unfrequently seeking them on the ground. It has the habit of feeding and raising its tail while hopping about, and at times, especially when calling, it raises its feathers and displays the concealed black stripe on its neck. The ordinary note of the tailor-bird is "to-wee-to-wee-to-wee," or, as syllabized by Layard, "pretty-pretty-pretty;" when alarmed or angry it has a different call. It is a familiar bird, venturing close to houses, but when aware that it is being watched it becomes wary and shy. The tailor-bird makes its nest with cotton-wool and various other soft materials, sometimes also lined with hair, and draws together one leaf or more, generally two leaves, on each side of the nest, and stitches them together with cotton, either woven by itself or cotton-thread picked up; and after passing the thread through the leaf it makes a knot at the end to fix it. I have seen a tailor-bird at Saugor watch till the dirzee (native tailor) had left the verandah where he had been working, fly in, seize some pieces of thread that were laying about, and go off in triumph with them; this was repeated in my presence several days running. I have known many different trees selected to build in; in gardens very often a Guava-tree. The nest is generally built at from two to four feet above the ground. The eggs are two, three or four in number, and in every case which I have seen were white, spotted with reddish brown, and chiefly at the large end. Colonel Sykes says that the eggs are crimson, but he has probably mistaken the eggs of *Prinia socialis*, which last are sometimes brick-red throughout.—*Id.*, vol. i. p. 166.

Magpie with Yellow Beak.—In the 'Zoologist' for May (S. S. 757) I see that both you and Professor Newton incline to the belief that the magpie mentioned by Mr. Brown as having been seen by him near Falkirk was the American species, *Picus Nuttalli* of Audubon, and, though it may seem to be the height of presumption in me to differ from two such good authorities, yet I must say I think it far more likely to have been a common magpie (*P. caudata*) which had been indulging in a feast of eggs. Audubon does not say much about the American bird, but if it bears any resemblance to our magpie, how could it cross the Atlantic? for our species is a bird possessed of very limited powers of flight indeed, and in order to have arrived in Scotland the bird seen

by Mr. Brown must not only have crossed the Atlantic, but also the continent of America, for it only appears to be found in California. Every naturalist, of course, is always on the look out for new or rare species, but I think if I myself had seen a magpie with a yellow beak I should have thought at once that it had been robbing a hen's nest, not that it was an American species.—*R. G. Beckwith; Eaton Constantine, Wellington, Salop, May 1, 1867.*

Capture of Swifts by Hook and Line.—The icy east winds of the latter part of May were felt severely by the Hirundinidæ in this neighbourhood. I have been told of swifts and sand martins having been found dead in bed-rooms, having no doubt flown in at the open windows for shelter. On the 25th a swift was brought to me which had been picked up in the street: it appeared in a semi-torpid state, and I thought the best thing would be to place it in a basket in front of the fire: here it remained until the next morning, when I was pleased to hear it fluttering vigorously inside. The wind in the night had come round to the genial west, and when I took the basket out of doors and opened it the swift (without stopping to thank me for my hospitality) flew off with a great rush towards the neighbouring church-tower. A week after this I was fly-fishing with a friend, when a swift suddenly took my tail-fly as my line was trailing behind in the wind. It was with some little difficulty that I extricated the hook from the unfortunate bird's mouth, and having done so I put my novel capture into my basket to show my friend who was fishing at some little distance. On my way to him the swift was clever enough to take advantage of the hole in the lid of my basket, and flew out and escaped. But while I was in the very act of relating to my friend what had happened, behold! a tug at the end of his line, and, on looking round, a swift caught and fluttering! Carefully set free from its painful position, it was permitted to fly, and the work of flogging the water recommenced. Almost at the first throw another deluded swift took the red palmer as it streamed back at the end of my friend's collar, and the disentangling process had to be again enacted. After this the swifts ceased to molest us; but on our return home we were able to boast of having taken fish and fowl in equal numbers—*viz.* three trout and three swifts. I have fly-fished, I may safely say it, many thousand times, but never captured a swift until the other day. The birds could not have been unusually hungry to have been so reckless of what food they seized, for the weather for several days before had been damp and mild, and insects must have been abroad in abundance.—*M. A. Mathew; Weston-super-Mare, June 4, 1867.*

Early Arrival of Swallows and Martins.—Swallows have arrived this year very early: Mr. Ingram, her Majesty's gardener, saw several martins near Windsor during the last week in March; and on the 1st of April a pair of chimney swallows were observed flying over the Thames in the Eton College playing-fields.—*Alexander Clark-Kennedy; Eton, Bucks, April 2, 1867.*

Nesting of the Kingfisher.—Though the subject of the kingfisher (*Alcedo ispida*) is somewhat stale, yet, in consequence of the remarks which I have just read in the October 'Quarterly' on "Homes without Hands," I send you the following notes, made this spring, in order to set at rest, if possible, a mistake regarding the breeding of this bird. Modern writers on the kingfisher are hardly more free from error than even Ovid or Pliny. The bird is a true miner, and makes a nest of fish-bones; but, as no rule is without an exception, where it cannot find a suitable bank to bore in, it has been known to nidificate in abnormal situations; and when abundance of proper fish

are not to be caught, it is obliged to do without bones. From many years' constant watching, I can exactly tell the probable position of the hole, and the day it will be begun. Accordingly, on Thursday, March 29, I sent two witnesses to a particular spot on the river Ouse, S. Neots, Huntingdonshire. They observed that there was on that day positively no hole of any kind, or vestige of a hole, in that bank. On Easter Monday, April 2, I sent a keeper to the place. He reported the hole as begun. On the same day I went in a boat, and, putting a reed up, found it by actual measurement about fifteen inches deep, the moulds being quite fresh outside. Droppings of the bird (which was now seen constantly leaving the hole) were visible in two places. There was also a shallow hole a little to the left of the one above-mentioned. This was a failure—either from caprice or some other cause, abandoned. We observe the same in woodpeckers, which will sometimes bore in three or four places before they get one to their liking—a circumstance I particularly remarked in a pair of the greater spotted woodpeckers (*P. major*) last spring. Between March 29 and April 2 the kingfisher had made two holes. I thought it best now to leave the place, only receiving from the keeper each morning a report, as he went by in his boat, that the bird was going on. Saturday, April 7.—I made a memorandum, "I again observe fresh moulds, but not as we consider to-day's, but yesterday's; hence, I suppose the hole to be nearly finished, if not quite." Here I should say, after taking these nests constantly for nearly thirty years, I find twenty-one days is the correct time from the commencement of the excavation to the end of laying seven eggs. I never had the luck to find eight; Mr. Gould, however, informs me he once did. Saturday, April 21.—"Opened the hole, situated in the perpendicular bank, to keep off water-rats. Found, by measurement, the entrance was twelve inches from the surface of the ground, and about five feet from the water. The length of the ascending gallery was eight and a half inches, and the oval chamber six inches in diameter more. The top of the chamber was nine inches from the surface of the ground. It contained the usual nest of fish-bones, which was one and a half inch deep; and the same with the seven fresh eggs are now before me, with two other nests from the same locality. The bird flew off after the first dig, which I commonly make so as to cover up the hole again without disturbance, if the full number of eggs has not been laid. There was no excrement in the chamber, but much just outside in the gallery. The size of the chamber is just sufficient for the owners to turn round pleasantly. When the young birds (which I have seen in every stage) have been some time in the nest, of course the hole gets very foul. Here, then, is a case capable of being attested by two or three witnesses, step by step, and concerning which there can be no doubt, where the kingfisher is proved to have made its own hole. I have known it, when driven from one bank by floods, to revert to an old hole of its own making in a previous year; but never has there been an instance of its taking up with the abode of its most deadly enemy, the water-rat. It is hard to prove a negative, but it is certainly a most unlikely thing for a kingfisher to enter a rat-hole. No one who has seen the eggs of this species *in situ* as often as I have can deny that the fish-bones are placed with the design of making a nest.—George Dawson Rowley; Brighton.—From the 'Field' Newspaper.

Colouring of Cuckoo's Eggs.—In the 'Wiltshire Natural History Magazine' for January appears the following statement in reference to the colouring of cuckoo's eggs:—"That the cuckoo, laying her eggs in the nests of other birds, is able to assimilate them in colour to the eggs of those birds whose nests she selects; that a

cuckoo's egg is blue in a hedgesparrow's nest or in that of a redstart, reddish in a robin's, brownish in a pipit's," &c. The statement is made on the authority of the celebrated ornithologist Dr. Baldamus, of Stuttgart. Now I would ask, is it possible to believe such a statement? Can specimens of cuckoo's eggs be produced from all or most of the thirty odd nests in which she is supposed or known to lay, bearing severally the same markings of the eggs of the nests from which they were taken? Where a cuckoo lays in a nest which has not at the time received its owner's eggs, what is the colour of the eggs she lays?

Abundance of the Cuckoo at Mayfield.—I do not recollect so many cuckoos at Mayfield in any former year as I have observed this spring. Not only is the well-known note heard throughout the day on all sides, and frequently also that rapid piping note somewhat resembling the *shake* of the nightingale, but I have seen them on the wing much more frequently than I recollect seeing them at Mayfield before. Have we been favoured with this abundant supply of cuckoos at the expense of other localities, or has the winter residence of these birds, or the weather during their passage to and from it, been more favourable to their preservation than usual?—*H. T. M. Kirby; Mayfield Vicarage, Sussex, May 11, 1867.*

Purple Gallinule in Hampshire.—Whilst staying at a friend's house in Hampshire last week, I was informed by a gentleman, who has seen the bird, that a purple gallinule had been shot some time since at about two miles from the house, which is on the river Hamble. It was a very good specimen, and was sent to a Cornish bird-stuffer to be set up.—*Frederic A. Hawker; 14, Connaught Place, Hyde Park, London, W.*

Dunlins at Kingsbury Reservoir.—On the 16th of April I saw two dunlins at Kingsbury Reservoir, and succeeded in obtaining them. They were in breeding plumage, and proved on dissection to be both male birds. Although dunlins occur here not uncommonly in the autumn, they are, I believe, rarely seen during the earlier months of the year.—*Henry Austin; Isleworth, May 13, 1867.*

Little Bittern near the Lizard.—Mr. Frederick V. Hill, of Helston, writes me word that he has obtained a good specimen of an old female little bittern, which was picked up in an exhausted state on Coverack Beach, near the Lizard. He does not describe the plumage, but if there is any material variation from the plumage generally recognized as that of the female I will communicate the same to the 'Zoologist.'—*E. H. Rodd.*

Little Bittern near Henley.—A specimen of this occasional visitor has been sent me for preservation, having been captured on Mr. Holmes' pond at Walgrave, Henley-on-Thames, on the 4th of May. The bird proved on examination to be a female; eggs in process of formation. The bird was observed sleeping on the banks of the pond, and being cautiously approached was killed by a well-directed stroke from a punt-pole.—*G. B. Ashmead; Bishopsgate Street.*

Lapwings at Henley-on-Thames.—I saw a large flock of lapwings on the 21st of March, which consisted, I should think, of upwards of two hundred individuals.—*C. E. Stubbs.*

The Purple Crested Heron near the Lizard, Cornwall.—I saw a female specimen to-day of this fine heron with Mr. Vingoe, who had just received it from the Rev. Mr. Robinson, the rector of the parish in which the Lizard Point is situated. The ovary contained a large bunch of eggs, varying in size from swan-shot to dust-shot.

The plumage of the bird is that described as the immature state, exhibiting generally brown rufous tints, especially the neck, which is bay-red. I observe the colour of the legs of this species is not given by Yarrell, Montagu, Selby, Jenyns or Morris. The naked part of the thigh (tibia) is bright yellow, extending to and a little below the tarsal joint; from thence this colour descends all the way down on the hinder portion of the tarsus, the front being brown. I am not sufficiently acquainted with the stages of plumage of this species, nor of the actual difference in the plumage of the adult of both sexes, to say whether the female is ever adorned with the plumes, crest, dorsal filaments and other characteristics which belong to the adult male, two specimens of which, in the most perfect plumage, I have received from the neighbourhood, as previously recorded in the 'Zoologist.' At all events, if three years are necessary to complete this perfect plumage, the state of plumage of the present example must not be regarded as that of the female bird, as a matter of course, although the ovary shows that it is not a young bird.—*E. H. Rodd; April 24, 1867.*

Squacco Heron.—We generally get specimens of this elegant heron every spring from the Land's End district, and I believe every example that has come under my notice in the last thirty years has occurred at this season of the year only. I have received them in April and May, but I never yet have seen one with the occipital and dorsal plumes fully developed. I have found, on turning up the feathers on the neck and back, the new plumed feathers in active progress and indicating a development in a short time. One which I examined to-day was in that state, perhaps more forward than usual, as one of the occipital plumes was considerably extended beyond the ordinary feathers. On examining the under plumage all over there was a profusion of these ornamental feathers about an inch long. We have arrived at the end of the first week in May, and it is curious that the vernal plumage should be so backward, and I am at a loss to know whether to account for it by the age of the bird or by the real period of its assuming the ornamental plumage being altogether late, or simply to old birds retaining the plumed feathers permanently, as I believe they have been killed earlier in the spring elsewhere with a fully developed plumage.—*Id.; May 7, 1867.*

Hybridity in Water-fowl.—Naturalists interested in hybridity will appreciate the following instance:—Last autumn two geese, hybrids between the Canada goose and the Egyptian bargander (sex unknown, characters approximating more nearly to the Canada) were placed on the water in this park. In the spring one of them paired with a large mallard duck, displaying the most assiduous and jealous attachment to her, and suffering nothing else to approach her. The duck laid several eggs, but from various mishaps three only were preserved: these, with a full nest of other eggs, were incubated by her, the gander meanwhile mounting guard day and night over the island on which she was nestling, and becoming furious at the intrusion of even the regular attendant. Of the three eggs one proved to be addled, another on the point of being hatched disappeared *in toto*, the third was safely matured. The young bird at birth was rather smaller than the ducklings hatched with it, and had their general appearance: on examination, however, there were evident differences in the feet, legs and head; it was, moreover, nearly voiceless. Carefully tended, it began at once to flourish, and at seventeen days old it was as large as a fine gosling of that age, being about four times the size of the ducks. It is still growing fast and feeding voraciously, evidently full of vitality, and bidding fair to develop into a large and powerful bird. The young ones being removed from the duck, she is again "keeping company" with

the gander and laying. The other gander several times essayed to form a matrimonial alliance with a female bernicle, but the usual indisposition to breed of the latter rendered his attentions futile: on one occasion, however, he succeeded in taking the bernicle at a disadvantage, and effected his purpose. In both Ganders the generative apparatus is largely developed.—*Charles W. Devis; Manchester.*

Egyptian Goose at Barnstaple.—I have lately had sent to me from Barnstaple an Egyptian goose, which was shot on the estuary of the River Taw, on the 29th of April: I received it in the flesh. It proved to be a young male, whether in the plumage of the end of the first or second year I cannot determine. I am equally unable to pronounce upon its being a wild bird or a straggler from some ornamental water. The history of many specimens of this goose is very doubtful. It is a very restless bird, one which often takes long flights from ponds on which it is kept as an ornament. I was staying last autumn at Budleigh Salterton. Every evening a flock of Egyptian geese used to fly down from Lady Rolle's park, a mile or two off, to the mouth of the Otter, to feed. They had then all the appearance of being wild geese. As they flew high over one's head, or as they settled down on their feeding-ground, any one might well be excused for not recognizing them as tame birds that had strayed away from their waters in a neighbouring park. An enthusiastic bird-collector who killed one of them might readily have believed that he had obtained a genuine specimen of a rare straggler. Supposing any of the birds had wandered to the estuary of the Exe, a few miles to the westward, they might there have been regarded with an easy conscience as genuine strangers. I know of no ornamental waters in North Devon where this handsome goose is kept. My bird, if a park-escape, must have come from some distance. He was in very poor condition, but I do not regard this fact as shedding any light upon his origin. I was struck when I set him up by his apparent value to the disciples of Darwin. If any two species are types of a divergence from a common species, *Anser Egyptiacus* and *A. gambensis* might well be brought forward as such. In the latter the wings have the developed spur which is rudimentary in the wings of the former. Both species have a close correspondence in the general tints of their plumage; both have a long tarsus and an erect position of body; both are conspicuous for the beautiful metallic-green colour of the primary and secondary wing-feathers; while in *A. gambensis* the upper mandible possesses a fully developed shield-like knob (scutellum), which is less strongly marked in *A. Egyptiacus*. Of course hundreds of similar pairs might be selected out of all orders of birds, whether they prove anything is a deep and difficult matter.—*M. A. Mathew; Weston-super-Mare, May 4, 1867.*

Egyptian Goose near Northampton.—One of these rare visitors was shot on the 24th of May, at Dollington, a village about a mile off. It was grazing near the fish-ponds, within a hundred yards of the Hall. The keeper who shot it says he was in considerable doubt whether to fire or not, and twice took his gun from his shoulder, as he thought it was a tame bird. I have seen it, and find there is no doubt about the species.—*Henry P. Hensman; Northampton.*

Correction of an Error.—At Zool. 671, lines 1, 2 and 3, there is a mistake in the composition: read "the blackheaded and herring gulls," in saying that the blackheaded was far more plentiful than the common gull. The whole sentence is utterly ungrammatical, but still this is what it should have been. There are errors at pages 671 and 676, lines 4 and 11, from the bottom respectively: read there "bill" for "bird," and "rest" for "nest."—*W. Vincent Legge; Woolwich, April 24, 1867.*

Lesser Tern at Taunton : Sandwich Tern and Snow Bunting at Exmouth.—When in Taunton, on Saturday, the 4th of May, I had a lesser tern given me by Mr. Haddon, of that town: it had been shot that same morning by the river, in a place called the Priory Fields. The Sandwich tern I shot on Friday, the 12th of April, when on an expedition to Exmouth to look for birds for my collection: when I first saw it, it was sitting on a buoy off Exmouth Bar. The two snow buntings I killed on Wednesday, the 10th of April; they are in summer plumage, black and white, very little of the tawny edgings of the feathers being left. A friend who was with me killed two others on the Friday; they were in exactly the same plumage as my birds: all four were shot on the Warren at Exmouth. I may add that I killed one and saw many redthroated divers, but none in anything approaching summer plumage, not even so far advanced as the one I mentioned in the May number of the 'Zoologist' (S. S. 760) as having been picked up at Bishop's Hall.—*Cecil Smith; Lydeard House, Taunton, May 6, 1867.*

Breeding of the Blackheaded Gull at Pilling Moss, Lancashire.—Crossing the River Wyre in a ferry-boat, just in front of the barracks at Fleetwood, lands you about four miles and a half from Pilling Moss, a part of the country which fifty years ago was wild unreclaimed land, but now is under cultivation, with the exception of one small portion, a heather patch of some thirty acres. In the centre of this tract lies some two acres of swampy, rusby land, green, doubtless from the *excretæ* of the countless numbers of blackheaded gulls (*Larus ridibundus*) which breed here. This spot is called by the common people in the neighbourhood "Gull Island," though it is not surrounded on any side by water. The name "island" arises doubtless from its distinct colour to the surrounding heath. The breeding-place of the blackheaded gull is the property of Mr. Henry Gardner, and he deserves the thanks of every true lover of Nature for the way he protects them. From the beginning of April till the end of June the keeper hardly ever leaves the spot, otherwise the nests would all be robbed; as it is, he tells me, that during the night trespassers come in gangs to steal the eggs, and in spite of all his watchfulness succeed sometimes in doing so. The blackheaded gulls have bred on Pilling Moss for some twenty-six years; before that they built somewhere near where the town of Fleetwood now stands, but in consequence of the increase of the town they deserted its precincts, and, crossing the Wyre, settled on Pilling Moss, where they met with protection and favour. And well do they deserve it; for miles around the nesting-ground every field in which the ploughman is working has its flock of gulls following the plough and picking up every grub or insect that the coulter disturbs: now floating gracefully over the ploughman's head, now on quivering wing and with outstretched feet a few inches from the newly-turned-up mould, they form a lively and beautiful addition to the landscape. But the breeding-place itself is the wonderful sight: as you approach within a few yards of the green spot I have already mentioned, the birds begin to rise, and when you are fairly among the eggs all hover in a dense cloud over the nests; to endeavour to count them or form any estimate of their number would be futile, as easy to say how many flakes of snow one could see falling on two acres of ground in a heavy snow-storm: there must be many thousands. Not the least interesting thing is the fact that twenty-six years ago the colony consisted of only a limited number; now, under the system of protection, they have increased to countless multitudes, and no doubt will continue to do so. The nests were very numerous on the 4th, when I was there, so much so that care had to be

taken in stepping not to crush the eggs, but about the 15th the keeper tells me the number of nests will be greatly increased. The nests, composed of rough grass, rushes or pieces of stubble, were scattered broadcast, the centre of every tuft of rushes being occupied: the eggs numbered from two to four, seldom four, generally three; the nests with two in had probably not got their proper complement. I can fully endorse the statements of that most accurate naturalist, Mr. Hewitson, who writes, "The eggs of this species vary in size and colour more than those of any other gull; the ground colour is sometimes of a light blue or yellow, and sometimes green, or red, or brown." Amongst the hundreds of varieties I saw the other day I noticed one white all over, with the exception of the black cap on the large end covering about one sixth of the shell. Mr. Gardner's keeper, who has been on the ground for many years, tells me that the gulls vary in their arrival, nesting, and departure, according to the season, but only a few days. The first fortnight of March covers their arrival, the first eggs are laid during the first fortnight of April, and the young commence to hatch during the first fortnight of May. This year the keeper tells me that the first birds made their appearance on the 6th of March, and the first eggs were laid on the 13th of April. The early broods will leave the breeding-place in the end of June, and by the end of July scarcely a single gull will be left. I saw a dozen or more dead birds on the ground, one or two had been killed on their nests by weasels or stoats; the others I am afraid came home to die after being peppered by some of those cockney sportsmen who haunt the beach of watering-places in the spring season.—*H. W. Feilden; Fleetwood, May 6, 1867.*

The Plumbeous Water-robin (*Ruticilla fuliginosa*).—It lives entirely along rivers and mountain torrents, and may often be seen on a wet and slippery rock, just above a boiling rapid; it climbs up the wet rocks with great facility, and every now and then, alighting on a rock, it spreads its tail, but does not vibrate it like some of the redstarts. It is a pugnacious little fellow, and often gives battle to the little *Enicurus Scouleri*, which delights in similar spots, and it generally drives its antagonist away. Its flight is rapid and direct. It feeds on various aquatic insects and larvæ, some kinds of which are always found just at the edge of the water, and which a wave often leaves behind it on the rock. Griffiths, in his private journal, states that he observed and shot it in Kaffiristan, while it was "examining a wall for insects, and fluttering about the holes in it."—'*Birds of India*,' p. 143.

The Pukras Pheasant (*Pucrasia macrolopha*).—This is another forest pheasant common to the whole of the wooded regions, from an elevation of about 4000 feet to nearly the extreme limits of forest, but is most abundant in the lower and intermediate ranges. In the lower regions its favourite haunts are in wooded ravines, but it is found on nearly all hill-sides which are covered with trees or bushes, from the summit of the ridges to about half-way down. Further in the interior it is found scattered in all parts, from near the foot of the hills to the top, or as far as the forest reaches, seeming most partial to the deep sloping forest composed of oak, chestnut and Morenda pine, with box, yew and other trees intermingled, and a thick under-wood of ringall. This bird is of a rather retired and solitary disposition. It is generally found singly or in pairs; and except the brood of young birds, which keep pretty well collected till near the end of winter, they seldom congregate much together. Where numerous, several are often put up at no great distance from each other, as if they were members of one lot; but when more thinly scattered, it is seldom more than two old birds are

found together; and at whatever season, when one is found, its mate may almost to a certainty be found somewhere near. This would lead one to imagine that many pairs do not separate after the business of incubation is over, but keep paired for several successive years. In forests where there is little grass or under-wood, they get up as soon as aware of the approach of any one near, or run quickly along the ground for some distance; but where there is much cover they lie very close, and will not get up till forced by dogs or beaters. When put up by dogs they often fly up into a tree close by, which they rarely do when flushed by beaters or the sportsman himself, then flying a long way and generally alighting on the ground. Their flight is rapid in the extreme, and after a few whirs they sometimes shoot down like lightning. They sometimes utter a few lone chuckles before getting up, and rise sometimes with a low screeching chatter and sometimes silently. The males often crow at day-break, and occasionally at all hours. In the remote forest of the interior, on the report of a gun, all which are within half a mile or so will often crow after each report. They also often crow after a clap of thunder or any loud or sudden noise: this peculiarity seems to be confined to those in dark shady woods in the interior, as I never noticed it on the lower hills. This species feeds principally on leaves and buds; it also eats roots, grubs, acorns, seeds and berries, and moss and flowers. It will not readily eat grain; and is found to be more difficult to rear in confinement than the monal. It roosts in trees generally, but at times on low bushes or on the ground. The female lays seven eggs, nearly resembling those of the monal in colour: they are hatched about the middle or end of May. She makes her nest under the shelter of an over-hanging tuft of grass, or in a corner at the foot of a tree, and sometimes in the hollow of a decayed trunk.—‘*Birds of India*,’ vol. i. p. 524.

The Gigantic Stork or Adjutant (*Leptoptilos argala*).—In Calcutta and some other large towns the adjutant is a familiar bird, not to be frightened by the near approach of man or dog, and protected in some cases by law. It is an efficient scavenger, attending the neighbourhood of slaughter-houses, and especially the burning-grounds of the Hindoos, where the often half-burnt carcasses are thrown into the rivers. It also diligently looks over the heaps of refuse and offal thrown out in the streets to await the arrival of the scavengers’ carts, where it may be seen in company with dogs, kites and crows. It likes to vary its food, however, and may often be seen searching ditches, pools of water and tanks for frogs or fish. In the Deccan it soars at an immense height in the air along with vultures, ready to descend on any carcase that may be discovered. After it has satisfied the cravings of its appetite, the adjutant reposes during the heat of the day, sometimes on the tops of houses, now and then on trees, and frequently on the ground, resting often on the whole tarsus. The adjutant occasionally may seize a crow or a myna, or even a small cat; but these are rare bits for it, and indeed it has not the opportunity, in general, of indulging its taste for living birds, notwithstanding Cuvier’s statement that its large beak enables it to capture birds on the wing.—*Id.*, p. 731.

The Shell Ibis (*Anastomus oscitans*).—This curious bird is very abundant throughout those parts of the country which abound in rivers, tanks and marshes, particularly in Bengal, where many hundreds may be seen congregated together roosting on trees overhanging some large jheel. It lives chiefly on mollusks, especially on the large *Ampullaria*, but also on various others. Colonel Sykes states that he found it feeding on a species of *Unio*. I was formerly of opinion that the open space between the

mandibles was mainly caused by a process of wearing down by constant attrition with various shells; I am now inclined to doubt this. Many years ago shell-eaters were brought to me alive, for the purpose of training a bhyri, and these, as is usual, to prevent them struggling or fluttering, had their eyes sown up. To feed them the falconer had a large quantity of the large Ampullaria brought, which were placed before the captive and blinded shell-eaters. The bird secured a shell by its feet, and, after sundry alterations of its position, succeeded in cutting off the operculum as cleanly as if it had been done by a razor, but so rapidly that I was unable to see the exact way in which it was accomplished. It then inserted the top of its clumsy beak into the open mouth of the shell, and after working it about for a short time pulled out the entire shell-fish almost to its utmost tip. I saw this process repeated many times, and I cannot conceive that a bird which takes the trouble to extract the animal from the comparatively brittle Ampullaria should require to bruise the more hard and solid shell of the Unio. Colonel Sykes, indeed, states that the gape exists in the young individuals (an observation which I have also confirmed), and that it is a provision of Nature to enable them to open the shells of the Unio, on which they feed; as to how this is effected I cannot speak from experience. The shell-eater, in default of its proper food, will eat fish, frogs, &c., but shell-fish are its peculiar aliment, and every native name has reference to this habit. This anistomus breeds in Northern and Central India, on lofty trees, in June and July, in numbers together, laying four dirty white eggs: it is often found in company with other birds, night herons, black ibises, &c. Layard, who also found it breeding in Ceylon, states that it defends its nest most pertinaciously. The flight of this bird is strong and tolerably rapid, and it gives good sport with a bhyri. Mr. J. Shillingford informs me that it is sometimes caught in the Poonah district by a bamboo, with a noose attached, being bent down and fixed lightly to the ground by a small peg, to which an Ampullaria is affixed. The shell-eater hunting about finds the shell, and moving it to get at its contents, the peg is withdrawn, the bamboo flies up, and the noose catches the bird, which remains dangling in mid-air.—‘*Birds of India*,’ vol. i. p. 766.

Mr. Kirby's Rooks.—The lofty elms which stood by the side upon the grass-plot were planted by Mr. Bacon; they had long been taken possession of by the rooks, who were never to be disturbed upon any account, and in the spring time they were watched with a jealous care. It is true that one year, when it was represented that they were materially injuring the trees, and were become too numerous, leave was reluctantly given to have a few destroyed; but, as if it were a warning never again to repeat the attack, the whole household were taken ill in a manner most accountable: it was supposed that the rooks, which had been made into a pie, had partaken of some poison laid by a neighbouring farmer. The superstitious saw a yet heavier penalty threatened some few years after; for late one night strange noises were heard, but could not be traced. At length, to the amazement of the inmates of the parlour, a rook fluttered through the fire-place: the exact cause of the catastrophe was never ascertained.—*Freeman's 'Life of the Rev. William Kirby*,’ p. 495.

Toad-stones.—In the March number of the ‘*Zoologist*’ (S. S. 707), I observe a communication under this heading, from Mr. Roberts, to which is appended an editorial

note referring to me for a passage from Shakespeare on the subject. It has been remarked that so universal was the genius of this great poet, that no subject can be mentioned to which he has not in some way alluded. The present case is no exception to this. The exiled duke, in 'As You Like It,' Act ii. Scene 1, says:—

“ Sweet are the uses of adversity,
Which, like the toad, ugly and venomous,
Wears yet a precious jewel in his head.”

This probably refers to the toad-stone described by Mr. Roberts, which was said to be fraught with great virtues, medical and magical. But it may possibly have reference only to the brilliant eye of the toad, which sparkles like a jewel, and to which Shakespeare has elsewhere alluded:—

“ Some say the lark and loathed toad change eyes.”

Romeo and Juliet, Act iii. Scene 5.

For the lark has very ugly eyes and the toad very fine ones.—*J. Edmund Harting; Kingsbury, Middlesex, April, 1867.*

Vipers and Toads.—The following curious circumstance came under my notice one day last week:—I was searching for lepidopterous insects in a wood here, when I came upon two vipers lying together basking in the sun. One of them got away for the moment by crawling into some moss and leaves close to where the two were lying; the other I struck at and disabled at once. I then removed the moss in order to find the viper which had escaped, and, in doing so, disturbed two full-grown toads, which must have been sitting within a few inches of the vipers. I want to know whether any explanation can be given of the toads and vipers being in such close proximity, or if it might be merely accidental? The second viper I managed to dislodge from its retreat, and killed. Both vipers were apparently females, one quite full grown and the other nearly so.—*James Murton; Silverdale, near Lancas'ter, June 3, 1867.*

Large Sturgeon in the Severn.—There was a sturgeon caught in the Severn, near here, on Friday last, weighing about 130 lbs.: these fish are not unfrequently caught in this neighbourhood during the summer season, and are sold for a mere nothing. I had a round off the one mentioned, and found it most delicious eating.—*Edward Sweetapple; Cone Mill, Lydney, May 13, 1867.*

Lampreys in the Thames near Windsor.—A few days ago a boatman told me that he had placed several eel-pots in the River Thames, just below Surley Hall. On taking one of the eel-pots up from the water (where it had been the whole winter) he was surprised to see five or six lampreys in it, together with a very large eel. The eel was dead, but all the lampreys were alive. The boatman says that he does not remember seeing any of these fish in the Thames for ten years,—that is, so far up the river. They were, I believe, eaten by some people in this neighbourhood: the local name for them is “nine-holes.”—*A. Clark-Kennedy; Eton, April 2, 1867.*

Mr. Kirby's Fish.—The garden at Barham Parsonage had many associations pleasing to his mind. The large pond in the centre was filled with fish, including some very fine gold fish, which came every morning in fine weather to be fed. At the

end of this pond stood a large weeping willow, originally brought in the pocket of his friend Sutton's great coat: the age of the tree was measured by the life of the donor, for, worn out, rotten and hollow in the trunk, it fell the same year that the worthy Doctor died.—*Freeman's 'Life of the Rev. William Kirby,'* p. 494.

Helix obvoluta and *Clausilia Rolphii*.—In the April number of the 'Zoologist' (S. S. 760) Mr. Harting gives Harting as a new locality for these Mollusca. About twenty years ago two ladies collected many specimens there for me, and amongst those to whom I remember to have then given duplicates were Mr. T. V. Wollaston, Mr. Pickering, Mr. W. K. Bridgman, and Mr. R. T. Logan: I cannot therefore admit that the locality is new. Both species, I believe, may be found all along the northern escarpment of the chalk downs through Sussex, Hampshire and South Wiltshire. Beech woods and their vicinity are not generally regarded as prolific collecting-grounds by either botanists, entomologists or conchologists, and hence, in my opinion, the paucity of recorded localities for these two species. The Harting specimens of *Clausilia Rolphii* are rather smaller than those from Charlton, of which I possess some from the collection of the late Mr. Daniel Cooper. This species is found fossil in the pleistocene formation at Copford, Essex: it is singular that its present neighbour, *Helix obvoluta*, does not, as far as I am aware, occur in that deposit, nor does our largest chalk species, *Helix pomatia*. Collectors in the South of England used to be thought to have a great advantage over those in other parts of the United Kingdom, from the fact that about one-fourth of the British terrestrial and fluviatile Mollusca were considered to be peculiar to the southern counties. Possibly more diligent research may have altered this proportion. It would be interesting if Mr. Weaver would send you a list of his local species, and explain why, as a resident on the borders of Hampshire, and not far from Surrey, he has restricted his collection to Sussex specimens.—*William Thomson*; 4, *Adelaide Road, Penge, S.E.*

Clausilia biplicata.—This snail used to occur plentifully in Battersea Marshes, in the osier-bed on the banks of the Thames, below the "Red House." Have any of your correspondents met with it since the formation of Battersea Park?—*Id.*

Fleas in Southern India.—Observing in the 'Zoologist' (Zool. 9739) a note remarking on the decrease of fleas of late years, it may interest the writer and others to hear that in this neighbourhood, on the contrary, they were never, to my knowledge, so numerous as at the period referred to: I remember to have heard great complaints. I am not aware whether fleas breed and multiply on our shores, though in the South of India I have found them among the sand-hillocks skirting the sea in countless numbers; for instance, on one occasion, when passing a few days (in the year 1832) at a bungalow on the shores of the Gulf of Manar, I could not stroll on the beach of an evening without being covered with fleas from head to foot, so that my white dress was completely dotted and spotted with them. Fortunately, being of a sluggish kind, they could be brushed off by hundreds; however, I was eventually driven back to my head-quarters at Ramnad, finding the flea-plague even worse than the plague of mosquitoes, on the scorching sandy plains around the fort.—*Henry Hadfield*; *Ventnor, Isle of Wight.*

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

June 3, 1867.—Sir JOHN LUBBOCK, Bart., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—
 ‘Annales de la Société Entomologique de France,’ for 1866; presented by the Society.
 ‘The Journal of the Royal Agricultural Society,’ 2nd Series, Vol. iii. Part 1; by the Society.
 ‘Proceedings of the Entomological Society of Philadelphia,’ Vols. iv. and v., and Vol. vi. No. 1; by the Society.
 ‘Verhandlungen der K. K. Zoologisch-botanischen Gesellschaft in Wien,’ Vol. xvi.; by the Society.
 ‘Characters of some New Genera of the Coleopterous Family Cerambycidae,’ by Francis P. Pascoe, F.L.S., &c.; by the Author.
 ‘The Zoologist’ for June; by the Editor.
 ‘The Entomologist’s Monthly Magazine’ for June; by the Editors.

Exhibitions, &c.

Mr. Pascoe exhibited some Coleoptera from Graham’s Town, collected by Mr. Schiffman; amongst them were a new Pycnopsis, a new Ceroplesis, three new species of the European genus Stenidea, a new form of Rhipiceridæ, a new genus of Prionidæ belonging to Lacordaire’s “groupe Closterides,” and a new genus allied to Cerambyx.

Mr. T. W. Wood (who was present as a visitor) exhibited several specimens of Vanessa Milberti from British Columbia, all agreeing in this particular—that the light coloured scales of the wings appeared to have been abraded, suggesting the notion that the light-coloured scales had been less firmly attached than the dark-coloured.

Mr. Stainton exhibited the larva, pupa and imago of Earias siliquana, sent to him by Professor W. C. Williamson, of Manchester, who wrote as follows:—“The moth has almost destroyed the cotton crops in Egypt; it eats into the ovary of the flower in its early larval state, and goes into chrysalis in the cotton-ball, utterly destroying the cotton. Its ravages have extended over both Upper and Lower Egypt. The moth is of a bright green colour, like our little English prasinana of the oak; can you identify it? The insects have come to me through the Foreign Office and the Manchester Chamber of Commerce.” Mr. Stainton observed that the moth had hitherto been considered a great rarity, and he had been able to identify it as the Earias siliquana of Herrich-Schäffer by the aid of two specimens lately brought from Egypt by Mr. Pickard-Cambridge; Dr. Staudinger, when compiling his Catalogue of European Lepidoptera, did not possess a specimen. The insect was closely allied to the Earias chlorana of this country, which feeds in the terminal shoots of osiers.

Mr. Bond exhibited a small moth, belonging to the Tortrices, captured during the preceding week, in Darent Wood, by Mr. E. G. Meek, and which he believed to be new to the British list.

Mr. Bond also exhibited a variety of Adela DeGeerella (male), captured at Charlton in 1866, and having the wings entirely suffused with bright yellow.

Mr. F. Smith exhibited an old razor-case in one of the compartments of which was a nest of *Odynerus quadratus*: the case had been allowed to lie on a shelf near an open window, and entry was effected through a hole in the bottom. In August, 1866, it was sent to Mr. Smith, with a request that he would name the occupant; but he was then unable to determine the species, as several wasps of the genus *Odynerus* were known to construct similar nests in crevices of old walls, holes in posts, and frequently in banks; and various instances of the construction of their nests in odd situations were on record. Thus Prof. Westwood had mentioned an instance of *O. quadratus* building its nest in the folds of a piece of paper; Mr. Curtis has discovered a nest of *O. parietum* on the top of a book; and a friend of Mr. Smith's had once brought him an octave flute, which had been left in an arbour during a few days' absence, and in the bore of which *O. quadratus* had built its mud-cells. The cells constructed in the razor-case produced ten males and four females; the cells were placed in various positions, necessitated probably by the form of the case and the confined space; the four female cells and six of the male cells were placed transversely, the rest were in a longitudinal direction; one cell was empty, and was placed obliquely to the sides of the case. The development of the insects was as follows: on the 20th of March, 1867, they were still in the larva state; by the 10th of May they had changed to pupæ; on the 22nd of May six males came forth; on the 25th three males; on the 30th one male; on the 1st of June three females appeared; and on the 3rd another female. Not a single parasite was obtained. Mr. Smith added that he had bred most of the species of *Odynerus*, and had found that the number of males always exceeded the number of females, in the proportion of three to one, or thereabouts.

Prof. Westwood was able to add another instance to the list of curious localities for wasps' and bees' nests. Mr. Higgins had a Peruvian drinking-vessel in the form of some uncouth imaginary quadruped, the mouthpiece being in the back of the animal, and in this cup, at the extremity of one of the creature's legs, a bee had built its nest.

Mr. M'Lachlan remarked that he had recently seen the male (*S. linearis*, *Klug*) of the sawfly, *Strongylogaster cingulatus*, in some numbers near Croydon; although the female was generally very abundant, the male was very rarely seen. He alluded also to the apparent total absence of males of many species of Tenthredinidæ, as, *e.g.*, in *Selandria stramineipes*, the females of which were universally abundant, in company with the *Strongylogaster*, on the young fern in spring. It would almost seem as if these were cases of parthenogenesis.

Mr. Janson mentioned *Tomicus villosus* as a nearly parrallel case among the Coleoptera; it was true Ratzeburg figured an insect which was said to be the male, but, though myriads of the female were found annually, he believed that the male had never been detected in this country.

The President exhibited a specimen of one of the wingless Diptera which he had found at Farnborough, Kent, under bark, in company with *Thysanura*. He believed it to be the *Epidapus venaticus* of Haliday (see Walker, *Ins. Brit. Diptera*, iii. 56).

Mr. S. Stevens exhibited specimens of *Gordius aquaticus*, numbers of which were that morning observed on the ground in his garden at Kennington after the heavy rain of the previous night. A nephew of his had also seen the *Gordius* at Ashford on rose trees. Mr. Weir had noticed them at Brixton, and Mr. Bond near the Regent's Park, on bushes.

Prof. Westwood enquired whether any Member present had noticed any constant variation in colour, or markings or other external character, by which the sex of larvæ could be determined? Mr. F. Smith said that he had once found a lot of *Anthophora* larvæ, which, instead of the usual ivory-white, were of a saffron-yellow colour; but they produced male and female *Anthophoræ* indiscriminately. Mr. Stainton remarked that larvæ of *Chærocampa Elpenor* and *Porcellus* occurred of two different colours, but he could not say whether the differences were sexual. Mr. Bond, however, had kept the two forms of *C. Elpenor* separate, and each form had produced both sexes.—*J. W. D.*

Death of the Rev. Hamlet Clark.—It is my painful duty to record a severe loss that Entomology has suffered by the death of the Rev. Hamlet Clark, one of its most accomplished and most persevering cultivators: he was the eldest son of the Rev. Henry Clark, Vicar of Harmston, Lincoln, where he was born in 1823: from his earliest days he evinced a strong love for Natural History: when at College he possessed an excellent collection of British birds, nearly all of which were procured by himself: spiders, too, were to him a study full of interest: butterflies and moths were subsequently taken up, and researches in this branch of the Science became his occupation day and night; but during the last ten years of his life Coleoptera became the subjects of his special investigation, and he made the carnivorous water-beetles his especial study: in pursuit of these he travelled over a great part of these islands, and also extensively in Spain. Towards the end of the year 1856 he crossed the Atlantic, with a view to forming collections, in company with Mr. Gray, and in the 'Zoologist' for the following year published two most interesting papers on its entomological productions; he stayed at the Corcovado Mountain, Pijuca, Constanica, Presidencia and Paraihiba: the two first immediately above Rio, Constanica and Presidencia in the Organ Mountains, and Paraihiba on the river of the same name. Coleoptera were the principal objects of his researches, and he describes the localities, modes of capture, &c., with much precision: he also tried sugaring for Nocturnal Lepidoptera, and found it as productive as in England. Diptera were confined to those pests known in the country as sand-flies, musquitos and borrachudos. Hymenoptera, with the exception of ants, were rare, but these seemed to abound; and he describes the nest of one species, built in trees, that is an article of commercial value, being cut up into slabs or blocks and used for the purpose of lining ovens. He also gives a useful, rather amusing account of the necessary outfit of an entomologist in these regions. Previously to this Mr. Clark had published three admirable papers in the 'Zoologist' on our British water-beetles, giving lists of all the species, with synonymes, critical remarks, and useful notices of continental species nearly allied to our own; and he since published several highly useful papers in the 'Transactions of the Entomological Society,' as well as Catalogues for the British Museum; through the kindness of Mr. Dunning and Mr. Smith I have received a complete list of these, but it is too long for the short space I can afford for an obituary notice here. For the last four years Mr. Clark's health had been declining, and his illness was attended with much suffering: he died at Rhyl, on the 10th of June, 1867, aged forty-four years, and was buried in Rhyl Cemetry on the 13th. His end was marked by peculiar serenity and happiness.—*E. Newman.*

Letters on Variation in Lepidoptera. By EDWARD NEWMAN.

LETTER THE SECOND.—ALTERNATION OF GENERATIONS.

My dear Mr. Wollaston,

The theory of alternate generations or avism is exceedingly simple; it is that the child shall more closely resemble its grandmother than its mother: the male parent is not supposed to contravene this rule, but there is less certainty in investigating the phenomena: take an illustration of this, a female butterfly or moth is observed in the act of oviposition; we are liable to no mistake about the female parent, but are utterly ignorant of the male, the same with many of our domestic animals, as cats or house-dogs: now giving a designation, as B to the female moth, the female cat, or female dog, the theory would suppose the progeny of each (which may be designated as c), to resemble the grandparent (a) more than the parent (B), and therefore that a series of generations would exhibit certain characters alternately, thus:—a B c D e F g H i K l M n O: those generations designated by small letters possessing certain characters in common, and those designated by capitals possessing certain other characters in common.

It will at once be seen that this theory has a direct tendency to subvert the Lamarckian hypothesis of evolution, because the same series of generations can scarcely possess two opposite propensities, the propensity to change to something new, and the propensity to revert to something old; but this phase of the inquiry may be dismissed for the present, for it must be obvious to every one capable of reflection that so abstruse a question requires a more careful and critical examination than can be given it here. Be this as it may, a belief in the tendency to recede to a prior character is no hypothesis, since it is exhibited throughout the organized world, and is familiar to all breeders and to all naturalists. Professor Huxley, in his Lectures on the "Phenomena of Organic Nature," has entered fully into the subject, and has shown, beyond all possibility of dispute, that this tendency is universal, but that it is methodical also: it is called "atavisism,"* and may be simply defined as a struggle to revert from recent change to the characters of a great-grandfather or great-grandmother, indeed to revert to some distant ancestral type. But the

* From *atabus*, a great grandfather or grandmother.

natural law, to which I now desire to invite especial attention, is not the reversion to a remote ancestral type so much as a particular and definite phase of the law, *a reversion to the distinguishing characters of the grandparent*, and this phase of a universal law I propose to call "avism."*

Beginning with man, we find the foot-prints of avism in mental and physical peculiarities, and descending even to malformation. Lunacy, phthisis, gout, are beyond all question hereditary, and beyond all question descend from grandparents, and so does abnormal formation. Professor Huxley cites a familiar instance. A Maltese family, Kelleia, had a tendency to produce offspring with six fingers to each hand, and six toes to each foot; Gratio Kelleia was the son of parents who had the ordinary number of fingers and toes; of his grandparents we know nothing; but Gratio had six fingers and six toes: at the age of twenty-two he married a lady with five fingers and five toes, and the result of the marriage was four children, one of whom, Salvator, had six fingers and six toes; the others, George, André and Marie, had the normal number of five: all of them married people having five fingers and five toes, but Marie's first boy was born with six fingers and six toes: these four generations may be designated thus:—

- a. Name unrecorded, normal.
- B. Gratio, monstrous.
- c. Marie, normal.
- D. Marie's boy, monstrous.

In this case whatever divergent facts may be adduced, and there are several, it still seems impossible to resist the conclusion that Marie's normal condition, and her son's abnormal condition, were equally derived from grandparents: c was similar to a, and D similar to B. There have been other instances of six-fingered gentry in the world, but I think none so carefully noted as this of the Kelleia's, which was first recorded by Réaumur. Peculiarities of all kinds, originating how they may, reappear in the same way: I have been particularly struck with the incurable habits of young people, and have found them hereditary; thus one persisted in biting his nails; a second in pressing the nail of her fifth finger into the palm of her hand; a third in holding the little finger erect when holding a cup of tea: all habits derived from their grandmothers, whom they had never seen.

* From *avus*, a grandparent.

Again with horses, the methodical cropping out of hereditary peculiarities is a fact familiar to breeders; and even such natural peculiarities as the diverse colour of the two eyes are manifestly transmissible, and with almost absolute certainty, in alternate generations.*

It is, however, only by direct observation, and by the most careful breeding, that the phenomenon of avism can be clearly exemplified. The word "atavism," as rigidly applied, implies a reversion to the ancestral peculiarities or characters exhibited prior to grandparents; but avism as we shall find it in insects (which is really the point to be considered) goes back no farther than the penultimate generation: this is abundantly exemplified in horses, horned cattle, dogs, cats, rabbits, guinea-pigs, poultry and pigeons; and much as it may have been hidden from naturalists, it is perfectly familiar to breeders and dealers, who of course find their advantage in the knowledge. In guinea-pigs it is considered desirable to get them of two colours only, the ordinary colours being black, white and yellow; yellow is the colour least in favour, and of course breeders consider it desirable to exclude it altogether; but the sagacious breeder does not destroy the pigs adorned with this colour, unless the parents possessed the same ornamentation, for he knows that if a female possessing the desired character of colour produces tricoloured young, then the progeny of those young will assuredly revert to the desired colours of the grandmother. I have myself kept guinea-pigs, and have had excellent opportunities of observing this. Knowing the prevailing fashion, for I can call it nothing else, I once purchased a female guinea-pig with a perfectly white body and a perfectly black head: I kept her six years, during which period she of course produced "little pigs galore," but not one inherited the maternal perfections; yet among her grand-children the black heads were so abundant that I could afford to supply all my porcellus-fancying friends with these desirable cavies. In taking leave of these tailless pets, I may say

* An interesting note on this subject appears in the 'Zoologist' for June (S. S. 788), from the pen of Mr. Clark-Kennedy, concerning a dog which had eyes of different colours. "The man told me," he writes, "the dog was born with one eye blue and one dark brown. His mother was a greyhound and his father a mongrel, and their eyes were of the usual colour; but his grandfather was 'chany-eyed,' that is, had one eye blue and one brown. Might not this peculiarity have passed over one generation, in much the same way as lunacy or gout in families?" Certainly it had; and the comparison is not only to the point, but shows how well this natural law is known to observers.

that albinos are by no means so uncommon among them as Mr. Bell supposes.

Descending from sucklers, which are confessedly the most perfectly organized of animals, to the Salpæ, which are among the least perfectly organized, we find this avism an imperative and absolute law. Chamisso, in his treatise, 'De animalibus quibusdam e classe Vermium Linneanâ, Fasc. 1, de Salpa,' shows that this avism or alternation of generations is complete, and subject to no exception. The Salpæ are gelatinous, transparent marine animals, generally found in the form of a chain, but frequently also as detached individuals having considerable resemblance to a link of the chain. These two widely separated animal forms were formerly considered, as well they might be, distinct genera, and it was reserved for Chamisso to discover and divulge their true character. He found that the solitary Salpæ, when mature, always contained in the ovary a chain of associated Salpæ, all linked together exactly in the manner of the adult associated Salpæ. It appears to have occurred to him that there was some affinity between the solitary and the associated Salpæ, and that the solitary Salpæ might possibly be the detached links of the associated chain; but he was quite unprepared to consider the former as the *parents* of the latter. His astonishment was therefore great, when, in dissecting associated Salpæ, he found that these invariably contained solitary Salpæ; to use his own words, as translated by Professor Busk, he was forced to the conclusion "that *all* solitary Salpæ produced associated ones, and that *all* associated Salpæ were parents of solitary ones, and these again of the associated, and so on." Chamisso proceeds to amplify and elucidate this by adding, "so that a Salpæ mother is not like her daughter or her own mother, but resembles her sister, her granddaughter and her grandmother." Like every other discoverer, Chamisso had the full weight of scientific authority brought into antagonism with the conclusions at which he arrived; two points which may be very appropriately introduced here, were vehemently urged against him, *first*, the great difference between the associated and solitary Salpæ, and, *secondly*, that there was no similar instances of alternation throughout the animal kingdom. The scientific authorities of the day (1819), not content with simply pooh-poohing these discoveries, attempting by argument to refute them; *first*, by throwing a doubt over the accuracy of the observations; and, *secondly*, by giving them some other explanation. When I look back on the treatment of Chamisso, I cannot but feel comfort that the reception of Mr. J. V.

Thompson's researches into the metamorphosis of Crustacea, and my own theories on the true place of Stylops among insects, the composition of the thorax in Hymenoptera, and many other matters, have so grand a prototype as this persecution of poor Chamisso. Professors Meyen, Eschricht and Westwood have shown by irresistible arguments that such things cannot be, and their labours have received the endorse of the world of Science; nevertheless the onward progress of observation not only invalidates arguments, but corroborates and enforces facts; and the results may be safely entrusted to the inquiring spirit of the age in which we live.

In 1828 Sars made discoveries in the reproduction of *Medusæ* exactly parallel to those of Chamisso in that of *Salpæ*; and these were corroborated by Siebold in 1837; and in the same year Lovén published similar observations on *Campanularia*. The whole of these researches have since been reproduced and methodized by Steenstrup, and translated into our language by Professor Busk: so that we have the information at our very doors; and it results, in the words of Steenstrup, "in the remarkable and until now inexplicable natural phenomenon of an animal producing an offspring which at no time resembles its parent, but which, on the other hand, itself brings forth a progeny which returns in its form and nature to the parent animal, so that the mother does not find her resemblance in her own young, but in their descendants."

It remains to be stated that in endosteate animals, as the horse, cat, rabbit, pigeon, &c., these alternate generations are always regarded as mere abnormities, while in the lower groups they are received as genera: we have now to trace the same law in exosteates, and there we shall find them recognized as species.

It may safely be assumed that thousands of our book species of insects are neither more nor less than generations of species or moieties of species or fractional parts of species; but the subject is one which requires much closer investigation than it has hitherto received, and it is in vain for us to anticipate the day when these facts shall be made manifest by observations: the object of our collectors is to bring home the greatest possible number of individuals, or of so-called species, and when a collector ventures beyond this, and presumes to think and to observe, as well as collect, he seats himself complacently in the Darwinian groove, glides smoothly down into the unfathomable abyss of speculation, and endeavours to show that a butterfly with a spot more or less than usual on its wings, affords a proof that the individual,

or race, or variety, forms one of a chain of generations which connects a monad with a man. What I desire is to see a naturalist thinking his own thoughts, making his own observations, and working out independent results. In England and Europe we have done this with many of our indigenous species, and great is the debt of gratitude we owe to those who have observed accurately, and reflected on their observations wisely: from such observations and reflections I select half a score examples:—

1. *Leptoria diniensis* of Boisduval is the autumnal brood of *L. Sinapis* of Linneus.
2. *Pieris Chariclea* of Stephens is the vernal brood of *P. Brassicæ* of Linneus.
3. *Pieris Metra* of Stephens is the vernal brood of *P. Rapæ* of Linneus.
4. *Pieris Napeæ* of Stephens is the autumnal brood of *P. Napi* of Linneus.
5. *Vanessa Prorsa* of Linneus is the vernal brood of *V. Levana* of Linneus.
6. *Zygæna Ephialtes alternates* with *Z. Peucedani*.
7. *Selenia juliaria* of Haworth is the summer brood of *S. illunaria* of Hübner.
8. *Selenia delunaria* of Hübner is the summer brood of *S. lunaria* of the Vienna Catalogue.
9. *Selenia delunaria* of Stephens is the summer brood of *S. illustraria* of Hübner.
10. *Boarmia crepuscularia* of Haworth is the vernal brood of *B. biundularia* of Esper.

It will be observed that these examples are selected from the *Pieridæ*, *Vanessidæ*, *Zygænidæ*, *Ennomidæ* and *Boarmidæ*, distinct and distant families, with a view of showing how extended are the effects of this law of avism.

I am sure that to your practical mind the mere enumeration of the names of these familiar insects will be sufficient, but in order to bring the matter more directly before some of those who may not have had your experience, it seems desirable to go a little more into detail, and to select an example for illustration, since the imperfectly informed entomologist might very excusably hesitate to receive my assertion that the two moieties of the species could be proved to have a common ancestry.

There are two *Vanessæ* on the Continent totally different in general colouring, superficial appearance and season of flight: they are described by Linneus, Fabricius and other authors of unquestioned authority, under the name of *Levana* and *Prorsa*; they are figured in Schäffer's '*Icones Insectorum circa Ratisbonam indigenorum*;' *Levana* in pl. 217, figs. 3 and 4, *Prorsa* in pl. 132, figs. 1 and 2; and again in Hübner's '*Samlung Europaischer Schmetterlinge*,' *Levana*, figs. 97 and 98; *Prorsa*, figs. 94, 95 and 96. These four great entomologists give the two insects as perfectly distinct, nor do they allude to any similarity between them. *Levana* appears on the wing in April, *Prorsa* in June and July. In 1843 Herrich-Schäffer's magnificent '*Schmetterlinge von Europa*' appeared, and in this we find the intimation that *Levana* and *Prorsa* are the two moieties of one species; but notwithstanding this knowledge he gives both species, evidently considering the discovery too startling to be allowed to pass unchallenged. "That *Prorsa* and *Levana* really constitute but a single species," says Herrich-Schäffer, "is now perfectly established, but nevertheless I consider it best to allow both names to remain," as though he could not allow this astounding fact to appear all at once in its naked truth before the entomological world. It is now universally received by continental authors, and the only point proposed to be examined is whether the pupæ of *Levana* could by subjection to a low temperature be induced to remain in that state during the autumn and winter, and whether they would in the following April produce *Levana* or *Prorsa*. Again, whether *all* the alternating species complete two cycles or two generations in the course of every year, and whether *all* double-brooded insects are alternating, are questions which require the most careful investigation, but questions on which I will not presume to enter.

Another law, that of agamic reproduction, or agamogenesis, has been unfortunately so mixed up with this of atavism in the case of the Aphides or plant-lice, that it has become almost impossible to separate the two, and give to each its due importance; and here it may be observed that alternate generations are not unfrequently found to be agamic; but this would lead us into a field of inquiry too extensive for this essay. The winged *Aphis*, at the end of summer, leaves for ever the plant on which it has been nourished; it is borne on the wind without exhibiting any symptoms of volition; countless myriads perish, but some, a very small proportion, are driven against trees or shrubs, the sap of which will suit their descendants. The female when thus

arrested in her compulsory course, deposits her eggs in little crevices of the bark, or, as some authors have said, in the axils of the leaves, and these eggs remain unhatched until the following spring or summer; they then produce a race entirely different from the parent, a race without wings, of different structure, different colour, eating a different food, and bearing a different name. Thus *Aphis Humuli* of the autumn may have wings, a well-developed mesothorax, a distinguishing colour, an oviparous mode of reproduction, and may feed exclusively on the juices of the hop; while its descendant, *Aphis Pruni* of the spring, will have no wings, no developed thorax, a different colour, a viviparous mode of reproduction, and will feed exclusively on the sloc. The account reads marvellously like a fable, but it is not so: Mr. Walker, who has thoroughly investigated the subject, knows that these things are so; and this not by chance or by accident, but by a fixed law from which there is no appeal.

I feel that the subject is rather indicated than exhausted in these cursory remarks, but I refrain from amplification: what I have adduced is incontrovertible, and must suffice; and I am sure you will see its important bearing on our systematized lists of species, which must be decimated when life-histories yet unknown are carefully worked out.

You will perhaps ask, are these laws of atavism and avism universal or exceptional? The query is germane to the matter under consideration, and must be met, but I will give a very modified and rather indefinite reply. May I illustrate my meaning by an example? I believe it a law that the four extremities of all endosteate animals shall terminate in five divisions, as in Man; but I know that in very many instances the exceptions are so numerous and so decided as to eclipse or conceal the rule; as, for instance, in our horses and cattle. So in atavism or avism I cannot doubt the universal prevalence of the law, although I am fully aware how generally it is obscured by exceptions which appear to be conflicting.

Believe me, dear Mr. Wollaston,

Most truly yours,

EDWARD NEWMAN.

PS. I have to acknowledge, with thanks, the receipt of a communication from Mr. Wallace, in reference to Letter I., but to say I must decline to publish any comments on this series of Letters until my readers are enabled to judge of them as a whole. I have also to apologize for a typographical error at p. 725; in the second and third lines the word "*Euchelia*" occurs: the first is correct, the second should be "*Chelonia*."—*E. N.*

Notes on the Genus Deinacrida in New Zealand.

By WALTER BULLER, Esq., F.L.S.

OF the curious genus *Deinacrida* two New Zealand species are already recorded, *Deinacrida heteracantha* and *D. thoracica*. The following notes respecting these species and another which has not hitherto been described may prove interesting to readers of the 'Zoologist.'

1. *Deinacrida heteracantha* ("Weta-punga" of the natives).—This fine species has a very limited geographical range. I have never heard of its occurrence south of the Waikato district in the North Island. Formerly it was abundant in the forests north of Auckland; of late years it has become extremely rare. The natives attribute its extermination to the introduced Norway rat, which now infests every part of the country, and devours almost anything. One of these insects, in the collection of the late Mr. Sinclair, measured, with its hind legs and antennæ stretched out, fourteen inches; its head and body, exclusive of appendages, being two inches and a half. A specimen which I obtained in a pine forest near the Kaipara River, more than ten years ago, and which is now deposited in the Auckland Museum, is even larger. The sexes differ considerably in size. The weta-punga appears to subsist chiefly on the green leaves of trees and shrubs: it climbs with agility, and is sometimes found on the top-most branches of the Kahikatea and other lofty trees. When disturbed it produces a clicking noise, accompanied by a slow movement of its hind legs. When taken it kicks or strikes backwards with its long hind legs, which are armed with double rows of sharp spurs; and unless dexterously seized will not fail to punish the offender's hand, the prick of its spurs causing an unpleasant stinging sensation. My friend Mr. William Mair, of Deveron, obtained some exceedingly fine examples of this insect in the Whangarei district. He found the killing of them, so as not to injure the specimens, a matter of some difficulty; and in one instance attempted to drown the insect in cold water, but found it, after four days' immersion, as lively and active as ever. In another case, a large weta-punga, which he had immersed in almost boiling water and laid aside in his insect-box as killed, revived in the course of a few hours, and appeared to be quite unharmed! A pair which I caught in a low belt of wood near the Wairoa, and secured in a pocket-handkerchief, ate their way out, and

escaped before my return to the spot where I had left them suspended.

2. *Deinacrida thoracica*.—This species is very common in the North Island. It infests decayed wood, and particularly the dead stems of the tutu (*Coriaria sarmentosa*), into which it bores. The male may be readily distinguished from the female by its large head and long powerful jaws. The ovipositor (in the female) is about half an inch long, and is slightly recurved. This insect is preyed on by the long-tailed cuckoo (*Eudynamis tailensis*), the whistling parrot (*Nestor meridionalis*), and several other birds. In connection with this species of *Deinacrida* I have to record a remarkable circumstance which lately came under my own observation. Dr. Boor, of Wellington, who was collecting New Zealand insects, obtained several examples of the small weta, and dropped them alive into a bottle containing spirits of wine. One of them, after struggling for a few seconds, shot forth from the orifice of the alimentary canal two long processes, which came out from the body spirally and with a wonderfully rapid motion. The insect expired with these appendages disposed in coils. On examination I found that they measured, respectively, nine inches and eight inches and three-quarters, that they were of a rich brown colour, perfectly round, tapering to a point, elastic and resembling, in general appearance, a gutta-percha tube. This abnormal specimen is now in the Colonial Museum at Wellington.

3. *Deinacrida megacephala*.—I propose this name for a new species, of which I have received several examples (of both sexes) from the woods in the neighbourhood of Wellington. It is characterized by a head and mandibles so large as to appear out of all proportion to the size of the body. This exaggerated feature is wanting in the female, which, however, is distinguishable from *Deinacrida thoracica* by sufficiently obvious specific characters. The tibiæ are considerably thicker and more strongly armed with lateral spurs, although not longer, than in the other species; the thorax, which is ochreous-yellow, marked with black, in *D. thoracica* is of uniform dark umber, narrowly margined with brown; and the body of this species, instead of being pale brown, is deep reddish brown with transverse bands of black. The femora are marked on each side with three series of minute black spots, which are more conspicuous in the male. The following are measurements of the male:—Head and mandibles one inch; from anterior edge of thorax to the end of the abdomen one inch and three-sixteenths, the plate of the thorax measuring a quarter of an inch.

The antennæ are four inches long. Femur three-quarters of an inch; tibiæ one inch and three-sixteenths; tarsus and claws three-eighths of an inch. The vertex is much rounder or elevated and perfectly smooth.

WALTER BULLER.

Wanganui, New Zealand, May 2, 1867.

Extracts from a Journal of a Nesting Tour in Sutherland in 1867.

By JOHN A. HARVIE BROWN, Esq.

Wednesday, May 8.—Mr. Jesse and myself left Larbert for the North to-day, and arrived at Bonar at six o'clock in the evening. Long chat with our landlord there; he says he is certain that the jack snipe breeds in Sutherland, and he has himself seen the nest and eggs near the source of the Carron River, in Ross-shire. We offered a handsome reward to anyone who would bring or send a nest of eggs along with the old bird. Our landlord employed three different keepers, each of whom affirmed that he knew the bird to breed in his district. We afterwards received four common snipes' eggs and the old bird. Though we were thus disappointed, nevertheless I am still inclined to think that the bird *does* breed in the county, as I know several keepers there who know the bird as well as I do myself, and who would not confound it with either the dunlin or the common snipe. The late Mr. John Wolley's correspondent in Sutherland is among the number, and he knows all the birds of the county most perfectly ('Ootheca Wolleyana,' Part 1, page 39, and elsewhere, mentioned).

Thursday, May 9.—From Bonar to Altuacealgach Inn. Saw the following birds:—herring gull, lesser blackbacked gull (the commonest gull in the west of the county), great blackbacked gull, blackheaded gull, curlews, two magpies (the magpie is common about Rosehall and in the east of the county, but is almost unknown in the west), one hen harrier (male), one redstart, willow warblers, cuckoos, kestrels, chaffinches, wheatears, hooded crows (the common crow of the county), spotted flycatchers, robins, one raven, one missel thrush, one song thrush, rooks (do not in breeding season go further north than Cama Loch in the west). At Altuacealgach we received from our correspondent there five teal ducks' eggs and ten wild ducks' eggs, taken for us that day, also heron's eggs, &c.

Friday, May 10.—Visited a loch in the neighbourhood: saw graylag geese, redshanks, teal, wild duck, dunlins, sandpipers and one tern (?);

but got no eggs, it being too early, and the winter and spring being severe.

Saturday, May 11.—Fished Cama Loch, where we took a few rooks' eggs (they have only come there during the last year or so), and saw common gulls and one dipper, which must have had young near, and one blackheaded bunting.

Monday, May 13.—Got curlew's nest with *four* eggs. I have found many curlews' nests in Stirlingshire, but never found more than three eggs in each nest before. We were informed, however, that four is the usual number in each nest here; and we afterwards found another nest also with four. Saw one whimbrel; they are scarce, but do breed in the county. Saw blackthroated divers on one loch, but no traces of the nest yet.

Wednesday, May 15.—Saw one buzzard, which flew over our heads when we were fishing Loch Bhallan (pronounced "Vallan"). A curlew chased it for a long distance and then returned to the neighbourhood of its nest. Took an egg or two from a grouse's nest, which was found by Mr. Jesse's retriever "Sailor."

Thursday, May 16.—After some trouble launched a raft, or double pontoon, and went out to an island on Loch —— to take blackthroated diver's eggs. After all our trouble found that it was too early, but we shall get the eggs in a few days. Both birds were swimming on the loch.

Friday, May 17.—Even the lower hills were covered with snow this morning, and rain fell in the lower ground. Started for Loch Ailsh, in our boat on springs, called "Camaloch;" launched her there, and paid a visit to the heronry on the island. The nests were placed in alder and birch-trees, often not six feet from the ground, and were composed of thick heather-roots and pieces of alder-wood outside, lined with heather-tops and moss, and in several I saw green blades of the wild leek (*Luzula* ?), which did not improve the effluvia from the nests. We took and blew several eggs, but most of them were far gone in incubation. We had had a good many eggs taken for us before by the keeper there and others. Also took kestrel's eggs from a low cliff on a burn near Loch Ailsh. Saw one blackthroated diver, some redbacked mergansers (not yet breeding), ring ouzels, &c.

Saturday, May 18.—Went to Loch Urigil. First shot a graylag goose from her nest, containing three eggs, which proved perfectly fresh; they lay from three to five eggs. Took also redshank's, dunlin's, sandpiper's and a lot of lesser blackbacked gull's eggs from the islands,

There is a considerable colony of the latter, which occupies the two largest islands. The dunlin's eggs were peculiar; they so closely resembled common sandpiper's eggs. I walked round the loch afterwards and saw a single greenshank; it did not seem to be nesting, but was only feeding on the side of the loch. To-day I found another curlew's nest containing four eggs.

Monday, May 20.—From Altuacealgach to Innisnadamph (ten miles). The keeper at the latter place had taken for us five hen harrier's eggs, shooting the female from the nest, but spoiling the latter for preserving. We blew all five successfully. Three of this nest were much spotted with minute red specks all over the shell. To-day, on the way to Innisnadamph, we looked for blackthroated diver's eggs on a loch near the road, and saw both birds, but got no eggs. We received eggs from our correspondent in Innisnadamph, amongst which were three of the graylag goose, hooded crows, &c. We learned of the peregrine's eyrie also, but were told that there were young. The four common snipe's eggs arrived to-day along with the bird. Expect to take blackheaded gulls from a loch near Canisbe (a mountain in the vicinity). The blackheaded gull is, however, by no means common in West Sutherland. We also heard of three different localities where the greenshank breeds, and intend to devote a day to the search for their eggs. Saw a sedge warbler on one of the lochs to-day. Shiel-drakes breed on the east coast; widgeon on several lochs, but not in Assynt?

Wednesday, May 22.—Whilst fishing Loch Assynt we observed hedge sparrows and wrens on one of the islands. Took common gull's eggs.

Thursday, May 23.—I, along with a gillie and our landlord, took a ten-mile stretch over a shoulder of Ben More to look for ptarmigan's eggs (I had obtained full permission to shoot any birds I wanted for skinning from the Duke's factor at Scowrie). We were quite unsuccessful as regards ptarmigan, but I took a nest of four merlin's eggs. The nest was placed on a heathery ledge of a rock, and simply formed of heather-tops. We also visited a buzzard rock, but saw no traces of the nest, though I afterwards discovered it. Mr. Jesse took some more common gull's and hooded crow's eggs on the islands and shores of Loch Assynt.

Saturday, May 25.—Received from J. S. two blackthroated diver's eggs; one, as is often the case, was very long-shaped as compared with the other.

Monday, May 27.—The following is some information we received regarding the breeding of the buzzard:—If the old birds perceive anyone in the vicinity of their nest *before* the eggs are laid they will at once desert, but any keeper or shepherd, or other knowing the country, will easily find out their second choice. If *after* the eggs are laid the bird be disturbed she will destroy the eggs. J. S. has several times seen this take place. To-day had an unsuccessful stretch over the hills for ptarmigan's nest again, but the day was a bad one, there being thick mist on the ptarmigan-ground all day.

Wednesday, May 29.—Yesterday, along with our landlord at Innisnadamph, drove twenty miles to Scowrie. To-day engaged two cragsmen to go over the rocks on Handa, but few eggs were yet laid, owing to the backwardness of the season. Saw starlings, kittiwakes, guillemots, bridled guillemots, razorbills, cormorants, shags, puffins, herring gulls, great blackbacked gulls, rock pipits, black guillemots. Puffins are now much rarer on Handa, owing to rats having gained a footing on the island. Black guillemots are rare, although at one time plentiful. Cormorants were *introduced* to Handa, by Mr. MacIvor, the Duke's factor at Scowrie. Guillemots are the most plentiful species, and kittiwakes next. We received a Richardson's skua from Mr. MacIvor, shot a few days before on Handa. They are but rarely seen on the west coast, but are plentiful on the east coast. Its stomach contained a mass of zoophyte, a shrimp, and what we took for portions of beetles. It was a female, and the ovary contained about a dozen minute eggs. The bird was in very poor condition.

Thursday, May 30.—Visited the islands of Glen Coul, but only took oystercatchers and common gull's eggs, and received six redbreasted merganser's eggs taken that day.

Friday, May 31.—Received two more merlin's eggs. The merlin is a common hawk in Sutherland: I knew of three nesting-places within a very small area.

Saturday, June 1.—Devoted this day to searching for the greenshank's eggs at Loch ———, about five miles from Innisnadamph. Jesse and I beat every square foot of the ground, but could not find the nest. The birds were both there, dashing and crying round us all day, but only once coming within gun-shot of us. We searched for more than half a day amongst the long white grass which grows along the margins of the loch. The greenshank seldom or never lays amongst the heather. We finally offered a reward for the eggs, and

one gillie worked very hard to get them, but nevertheless we had to leave Sutherland without them this season. The bird resembles the godwit, and is noticeable by the large patch of white above the tail. Some notes of its cry much resemble those of the redshank, but are louder and not so harsh. While one bird kept circling round us, the other, probably the male, was wilder: it sat on a boulder of stone on the hill-side, about two hundred yards off, uttering unceasingly a monotonous single note, and jerking up its head and neck. When alighting on the ground the wings are raised after the manner of the curlew, and the bird keeps calling quickly at the same time. They seemed to have particular spots along the loch-side which they constantly alighted upon. On our first approach to the loch the male bird rose from a mound of heather, and before we could run forward had succeeded in drawing the female from the nest. The best way, we were informed by the shepherds and gillies (who are mostly well acquainted with the bird), to obtain the eggs, is to stalk up to the loch and fire off a gun: the female will then spring straight from her nest. The nest is seldom placed far from water. There are generally two pairs breeding at this loch, but to-day we only saw one pair:

Monday, June 3.—To-day received two widgeon's eggs from a gentleman who had taken them on a loch near Lairg this season. They are generally quite an unmistakable egg, being creamy white, intermediate in size between a teal's egg and a wild duck's. After blowing, peculiar lines in the shell resembling cracks may often be observed.

Wednesday, June 5.—Here we are leaving the shepherd's house at Loch Skennaskink (properly in Cromarty), at five o'clock in the morning, to visit the islands. On the islands we take any quantity of lesser blackbacked gulls, sandpipers and a nest of eight widgeons, concerning which more anon. We arrived at the islands about half-past five. We had no oars for the boat, only two bits of birch wood to paddle us over. When on the third island the wind rose, and we were compelled to remain on it about four hours. It was on this island Mr. Jesse found the nest of widgeons (?). Whenever I saw them in the nest I unhesitatingly pronounced them to be widgeons' eggs. They were beautifully creamy, quite unlike any wild duck's eggs. The nest was almost circular, was placed in a bunch of heather, and was formed of wiry white grass, lined with down. The edge of the nest stood up perpendicularly from the basement to the height of about two inches. We left the eggs, and returned to the nest at intervals of from half an

hour to an hour, but utterly failed to catch a glimpse of the bird. At last the wind fell, and we took the eight eggs, and made for the fourth island, which was only about one hundred yards distant. Here we took some more lesser blackbacked gull's eggs, a willow warbler's nest with six eggs (nest lined with gull's feathers), and shot a great blackbacked gull and secured the two young ones: this done we returned to the boat; but the wind had risen, and we could not get off. We had brought no provisions, no rugs, and only a little whisky, as we had expected to return to the shepherd's house in a couple of hours. The gale lasted for twenty-five hours,—*i. e.* from the time it first commenced,—and to add to our discomfort, at one o'clock P. M. it began to rain heavily also. We did not get back to the shepherds's house at Clash till six o'clock next morning, and to return to our headquarters we had some fourteen miles to walk and row after that. I may as well state here that the widgeon's eggs blew well, but some three days or so afterwards they lost the creamy tint almost entirely, though the *crack-like* lines became visible in some of them. Now, the two eggs I received on the 3rd of June have still retained the creamy tint to perfection. I cannot consider these eight eggs to be thoroughly identified, but at the same time I feel convinced that they are widgeon's eggs. The nest, when we found it, was quite *uncovered*. We had two gillies and our landlord with us on this excursion.

Thursday, June 6.—After breakfasting at Clash—the lone shepherd's cot—we started off over the hills towards Loch Maddie, *via* Loch Martle, trotted up Loch Maddie—in our boat which had been launched from the springs the day before yesterday—and arrived at Elphin: we received two buzzard's eggs from an assistant there; two merlin's and a redthroated diver's egg, along with a fine redthroated diver, a female. The buzzard's eggs were taken last year, and blown very well indeed with one hole by the person who gave us them; the others were taken a few days before, and were unblown. One of the merlin's is a most peculiar egg, being very dark sepia, almost approaching black: it is of the usual size, but contained no yelk. The redthroated diver's egg was* pale green, with one or two large blotches of shaded reddish brown. Generally the redthroated diver's eggs are much darker than those of the blackthroated diver. The female bird was shot from the nest, which was placed close to the edge of a small peat-hole or pool of peat-water on the moor. To-day we also received another blackthroated diver's egg, which is a very long-shaped, light-coloured

egg. This from the nest which we had formerly visited on the pontoon, May 16.

Friday, June 7.—Unsuccessful day after golden plover's nests. Received some kestrel's eggs.

Saturday, June 8.—Devoted this day to an attempt to obtain a blackthroated diver for stuffing. Went up to Altuacealgach by post-gig, where I received some duck's (*Anas boschas*) eggs, taken that day, —probably a second laying, as they proved quite fresh. Arriving at Loch Bhallan, along with a gillie and the keeper,—Mr. Jesse was fishing Loch Awe,—I lay down opposite the island while the keeper and gillie went round the opposite side of the loch. There was only one old bird, along with one young one, when we arrived, swimming on the loch; presently the other (probably the male) came flying round, and passed within long range of the keeper. "Bang" went that worthy's gun, and the bird dropped to the shot, and received the second shot on the water before he could dive; whether he really was winged or not we could not say, but he certainly was slow in diving: he now, after coming up, moved slowly across the loch towards my ambush, continually uttering a low guttural "gluck! gluck!" at regular intervals. I fired at about thirty yards distance, but he got under the surface before the shot reached him. We fired together some ten or fifteen shots afterwards, all to no purpose as regards the old birds, as they were now fully on the alert and dived instantaneously; the poor young one, however, got a stray shot in the neck, and we picked it up on the shore some little time afterwards: it lived with us till Monday morning, but died early on that day: we would have left it at the loch, knowing that the old birds would be much more wary after losing their young, only we were afraid that it would not survive the wound: we fed it moderately on pieces of fish, and it had a tub to swim about in; it was amusing to see it peck at anyone who put his or her fingers near it. I have since had it stuffed. We are told that though the female blackthroated diver lays two eggs, more than one young one is seldom seen in company with the old birds, and this instance is certainly in favour of this supposed rule. It was Mr. Wolley's correspondent who told us of this: he has in his time taken scores of their eggs and seen plenty of the young birds. He also told us the following regarding them: if the first laying of eggs be taken, a second couple of eggs may often be laid by the same bird in a week afterwards. The blackthroated diver is more plentiful in Assynt than the redthroated diver, but the latter is more plentiful in

Tongue—further north than the former. The blackthroated divers do not often cry except when they lose their young, but the redthroated diver may often be heard calling, with its wild almost unearthly shriek between the “miawling” of a cat and the cry of a child in pain. Both species call more in the evening or night time than through the day. The blackthroated diver almost invariably chooses to place its nest on an island, though there are instances of its laying on the margin of a loch. The redthroated diver lays its eggs as often on the shore as on the islands. The blackthroated diver makes scarcely any nest, but deposits its two eggs—one of which is invariably lighter-coloured and longer-shaped than the other—within a foot or two of the water, and the redthroated diver is generally considered to lay them much nearer the edge, and always above deep water. The same informant tells me the following: a groove in the channel is, where such channel is present, always to be seen between the nest of the blackthroated diver and the water. Once my informant set a trap in this pathway with a view to capture one of the old birds: when he revisited the trap he found only some of the breast-feathers, and the trap sprung. The young bird, which we had, when placed on a table or other level surface, threw the legs far back and seemed to push itself forward, without any aid from them whatever.

Monday, June 10.—Tried again to procure the blackthroated diver, and saw distinctly that it was wounded, but could not get any reasonable shots at it. Knocked some feathers out of a greenshank and picked up two legs of a young one, which had probably been killed by some bird or other animal of prey. A peregrine’s eyrie is not far distant from the loch which the greenshanks frequent. At the above-mentioned eyrie I found the legs of a young curlew one day before. It is generally supposed that the peregrine always takes its prey on the wing, but this looks as if such was not always the case. Heard of another redthroated diver’s egg being taken on another loch, but we did not succeed in obtaining it. Obtained five ptarmigan’s eggs; they are lighter in the ground colour than grouse’s eggs, and shorter or rounder in shape. We are assured that it is seldom that ptarmigan lay eggs as dark coloured as a *type* grouse’s eggs, but that grouse not unfrequently lay eggs as light-coloured as the *type* ptarmigan’s eggs.

Tuesday, June 11.—To-day Mr. Jesse and I obtained permission from Mr. MacIvor to fish the River Inver. I succeeded in getting one fish weighing eleven pounds and a half, clean run, and Mr. Jesse got

some twenty trout, which weighed ten pounds, with two or three at one pound.

Friday, June 14.—Having driven over to Scowrie, and made arrangements with our two cragsmen last night, we set off to Handa this morning, and were more successful in our visit this time, obtaining a fine series of guillemot's and kittiwake's eggs as well as razorbill's and puffin's. At one time Peter must have brought up some sixty pounds weight of eggs in the pockets of Mr. Jesse's shooting coat. We shot some specimens of the rock birds for skins, and sat up till one o'clock in the morning, washing, blowing and marking eggs. The breeding-place of the great blackbacked gulls is perfectly inaccessible to man; at least up to this present date no man has ever stood on the top of "The Stack." This stack is an isolated pillar of rock on the northern portion of the island, fully as high as the main island: in it there are still a considerable number of puffins, the rats not having been in this case any more active than the nobler animal. There is a small colony of great blackbacked gulls and legions of guillemots, kittiwakes, razorbills, &c., breeding on it. I consider that there are far more birds on the island of Handa than at Hoy Head in Orkney, the Bass Rock in the Firth of Forth, and Ailsa Craig in the Firth of Clyde put together, and I have seen them all at close quarters except the last, which I only viewed at about a quarter of a mile distance. To-day we were not able to go round Handa in a boat, owing to the sea which was running, but any birds we wanted we either noosed on the ledges with a fishing-rod and hair-noose, or shot them so as to make them drop on the land (which last is very good practice).

Saturday, June 15.—To-day we visited the Badcall Islands, and helped ourselves very liberally to cormorant's eggs, which we found (even at this late date) on a rock where any child might have lifted them without danger or fear of danger. We failed in getting black guillemot's, which are now becoming rare on Handa and the Badcall Islands, perhaps owing to the rats, but more likely to the introduction of sheep to both places. We also took a few herring gull's eggs, which bird seems to be far from common on the west coast. Saw immense numbers of oystercatchers, but were too late for their eggs. Those eggs of the oystercatcher which we took in Glen Coul were much smaller than any I ever saw or took before, but the fisherman who piloted us said that he never saw them there any larger: they are sometimes called "ministers" by the fishermen, and are believed to forewarn the latter of stormy weather. The refuse of crabs and limpets

and other shell-fish were strewed all over the islands of Badcall Bay, being the "twelve basketsful" left over from many an oystercatcher's feast.

Tuesday, June 18.—Left Innisnadamp and slept at Bonar Bridge (thirty-eight miles). Mr. Jesse remained behind me at the former place to have some fishing. I visited, about ten o'clock at night, Loch Migdale, and took a score or so of blackheaded gull's eggs and a dozen tern's (arctic or common? I had no gun to shoot a specimen with). One of the gull's eggs was pale blue without marks.

Wednesday, June 18.—Left Bonar Bridge at 6.15 A.M. by train and arrived at home about 9 o'clock P.M.

I will now give a list of the species of birds which we noticed in May and June in West Sutherland, and also will include in that list any others that we had reliable authority for, as breeding or visiting the county.

Golden Eagle.—Still breeds in different localities, but none seen by us.

Sea Eagle.—Still not uncommon; saw one in Glen Coul in August, 1866; heard of more than one eyrie.

(*Osprey*.—Is now, I believe, extinct in the county.)

Peregrine.—Common.

Merlin.—Next to the kestrel, the commonest hawk in West Sutherland.

Kestrel.—Very abundant.

Sparrowhawk.—Not known in the west, but common around Rosehall and in the east.

Buzzard.—Still plentiful; we saw several pairs of birds this season, and knew of some four or five breeding-places.

Hen Harrier.—Common; are always to be found about the same hill-side every season.

(*Longeared Owl*.—Is found, I believe, not uncommonly about the shores of Loch Migdale in the east, but is unknown in the west. None observed by us, in either west or east.)

Barn Owl.—I have seen more than one on the shores of the Assynt Lochs, where they select an old hooded crow's nest to deposit their eggs in. They are not, however, by any means plentiful.

Shorteared Owl.—Is occasionally shot in autumn and winter. I cannot hear of its breeding in Sutherland.

Spotted Flycatcher.—Two or three seen at Rosehall.

Dipper.—A pair on every stream. Sixpence per head is still given to the keepers for such as they destroy. Called here the “king-fisher.”

Missel Thrush.—Rosehall; not common.

Song Thrush.—Common at Loch Inver, Scowrie, &c.

Blackbird.—Rare in breeding-season.

Ring Ouzel.—Abundant, but seldom more than one pair or at most two pairs in the same locality; called here the “blackbird.”

Hedge Sparrow.—Seen at several places, and once at a great elevation. Selby noticed the same in 1834.

Redbreast.—Rosehall and in Assynt; generally distributed, but not plentiful in the west.

Redstart.—Rosehall, and one seen on Loch Awe.

Stonechat and Whinchat.—Plentiful in some localities and scarce in others. Observed principally at Unapool Ferry.

Wheatear.—Very abundant, but never going far up the hills.

Sedge Warbler.—We did not observe many, but I believe that the cold east winds and bad weather did much towards keeping back many of the migratory species. Corn crakes were this year scarce, and we only saw two or three swallows the whole time we were in West Sutherland.

Whitethroat.—Observed by Mr. Selby in 1834, but none came under our observation. It is, I believe, scarce so far north.

Wood Warbler.—Very abundant: wherever a solitary birch-bush is, there one is certain to find the wood warbler, and they are quite numerous on the birch-covered shores of Loch Assynt and other lochs.

Blue Tit and Cole Tit.—Observed at Rosehall by Mr. Selby.

Pied and Gray Wagtail.—Plentiful.

Meadow Pipit.—Plentiful; never ascends, as far as I could see, above the heather.

Rock Pipit.—Plentiful on Handa and all along the coast.

Skylark.—Plentiful, especially at Scowrie.

Bunting.—Observed, by Mr. Selby, near Rosehall, where he says it is plentiful.

Blackheaded Bunting, Yellow Bunting and Chaffinch.—Common.

House Sparrow.—Scarcely ever seen in the west of the county, but plentiful elsewhere.

Goldfinch and Siskin.—Breed at Dunrobin, east.

(*Linnet*.—I believe plentiful, though we observed none.)

Twite.—Numerous, especially about Unapool.

Starling.—At Scowrie, Badcall, and at Smoo Cave, in Tongue (*Selby*).

Raven.—Plentiful still.

(*Hooded Crow*.—There are no carrion crows in Sutherland. Out of several hundreds killed in 1834 and two years previously (*Selby*), not one was a carrion crow.)

Rook.—At Rosehall. Furthest north in the west at Cama Loch.

Magpie.—Two seen at Rosehall; none in the west.

Wren.—Seen several times.

Cuckoo.—Very abundant.

Swallow.—Only two seen at Scowrie; seen at Bonar. Late this season in arriving.

Martin.—A colony on the limestone-cliffs behind Innisnadampf, but we only saw some two or three birds altogether this season.

Swift.—Smoo Cave, Tongue (*Selby*).

Goatsucker.—Rosehall. Breeds there, but we observed none.

Ring Dove.—Rosehall. Only two seen in the west.

Rock Dove.—Plentiful; never breeding in the caves of the islands, but always in those of the mainland.

Pheasant.—Rosehall and other preserves.

Black and Red Grouse.—Not plentiful as compared with other counties.

Ptarmigan.—Very plentiful on Ben More, Assynt, Braeback, Quinaig and others of the hills.

Partridge.—Not common in the west, but at Rosehall, &c.

Golden Plover.—Exceedingly abundant.

Ringed Plover.—Only observed one pair in the west; plentiful on east coast.

Peewit.—Plentiful in some localities.

Oystercatcher.—Abundant, but seldom coming inland to breed, as they do on the Tummel, Tay, Spey, Dee and others of the larger rivers. They do breed inland on Loch Shin.

Heron.—Several heronries in Assynt; the largest at Loch Ailsh (properly in Ross-shire).

Curlew.—Abundant.

Whimbrel.—Only saw one; do not seem plentiful, though they are known to the shepherds and gillies.

Redshank.—Did not appear to be so plentiful as one would be led to expect from the nature of the country. There are, I believe, upwards of three hundred lochs in Assynt alone.

Common Sandpiper.—Very common.

Greenshank.—By no means a rare bird—*i. e.* there may be some half-dozen breeding-places in Assynt alone.

Woodcock.—I saw none in spring, but have shot them in Assynt in August.

Snipe.—Common.

Jack Snipe.—See above, p. 851.

Dunlin.—Common.

Landrail.—Common most seasons, but this season we observed or heard very few.

Moorhen.—Does occur, but rarely.

Coot.—Rare; did not observe any.

Graylag Goose.—Breeds on many of the lochs of Assynt, as on Loch Urigil, Gorm and others.

Bean Goose.—This I insert as breeding on Loch Laoghal, on the authority of Mr. MacLeay, naturalist, Inverness.

Wild Duck.—Common.

Teal.—Common also, but frequenting certain spots every season.

Widgeon.—Scattered sparingly over the county; one pair or so on a loch, not more.

Scaup.—One female shot by Sir W. Jardine, in 1834; was accompanied by a young one (See Selby's "Birds and Quadrupeds of Sutherland," in the 'Philosophical Journal' for April, 1836.

Redbreasted Merganser.—Common; we obtained eggs at Kylesker. One or two pair on most of the lochs.

Little Grebe.—Rare (*Selby*). We saw none.

Great Northern Diver.—Mr. Selby observed one pair in Balnakiel Bay, in the north of the county, but did not find them breeding.

Blackthroated Diver.—Plentiful in Assynt, but scarce further north on the west, though found further north more inland.

Redthroated Diver.—Not so plentiful in Assynt as further north, where it replaces the last species.

Guillemot.—Abundant on Handa.

Ringed Guillemot.—More plentiful, I think, at Handa than at Hoy Head, in Orkney.

Black Guillemot.—Not now so plentiful as formerly.

Puffin.—Also decreasing in numbers.

Razorbill.—Plentiful.

Cormorant.—Abundant on Badcall Islands, and increasing in numbers on Handa, where they were introduced by Mr. MacIvor, the Duke's factor at Scowrie.

Shag.—Abundant.

Gannet.—Generally seen on the north coast, but comes much further south sometimes after herrings, &c.

Common (and Arctic?) Tern.—Common on the east, but rare on the west coast. We only saw one pair in Assynt.

Blackheaded Gull.—Plentiful on the east coast, as at Loch Migdale, but scarce on west. Used to breed at a small loch at base of Canisb Mountain, but were not present there this season.

Kittiwake.—Abundant on Handa.

Common Gull.—Abundant.

Lesser Blackbacked Gull.—The most numerous species in West Sutherland; large colonies on Lochs Urigil and Skennaskink (Cromarty) and on the Badcall Islands.

Herring Gull.—By no means an abundant species; we only took two nests on the Badcall Islands.

Great Blackbacked Gull.—A colony on Handa, and a pair or two found breeding on many of the lochs.

Richardson's Skua.—One shot at Handa; rare on west coast, common on east.

To the above list of course many species might be added, including winter migrants, but it is better to avoid entering them in it at all. There must also, I think, be other birds found breeding amongst the three hundred lochs of Assynt and the two hundred and fifty of Edderachyllis, if they were thoroughly explored. The scaup, for instance, has only once been discovered breeding, and such a bird as the pintail duck might breed just as readily. There are many lochs which have never had the angler's fly cast over them, and which have never been explored by any ornithologist, and it was only in 1834 that such birds as the blackthroated diver, widgeon, wild goose, &c., were known to breed in the wilds of Sutherland. I can only offer the above imperfect list as it is, hoping that some other will extend it to its rightful length, and that it may prove to have some interest for some of the readers of the 'Zoologist.' I have been much indebted to Mr.

MacIvor, the Duke's factor for the Assynt and Edderachyllis districts, for the kind permission he gave to use a gun for collecting purposes, as also for the permission he gave to fish the River Inver, and I cannot forget to thank most cordially all those who assisted us in collecting, and without whose aid we would have done but little. The cheerful willing way in which all our gillies and assistants helped us is very different, in my opinion, from what may too often be met with in more southern counties for a greater price. The inhabitants seem to have generally a good idea of the natural productions of their native hills, much more so than is found further south, where money absorbs the whole thoughts and employs the whole time of common labourer and master alike. But as this is scarcely "ornithological," I will now bring these extracts to a close.

JOHN A. HARVIE BROWN.

Dunipace House, Falkirk,
July, 1867.

Notes on the Ornithology of the English Lakes.

By JOHN CORDEAUX, Esq.

JUNE, 1867.

On looking through my note-book I feel somewhat disappointed at the result of three weeks' work, and the little information gathered connected with the Ornithology of this district. In a botanical point of view, however, my visit has been a great success, finding many plants I scarcely hoped to have seen. Often in my wanderings over these wild fells have I regretted my ignorance of Entomology; for indeed this Lake district seems to be a perfect paradise for an entomologist—every part, from the sedge-margined lakes to the crests of the great hills overshadowing them, teeming with insect life. Nor is it less interesting to the geologist, for here he will find himself surrounded by some of the oldest of the stratified rocks. On the summits of many of these great fells, nearly every stone we pick up has its own distinctive features, and, to those who can rightly read it, its own record of the ancient world.

I have extracted the following remarks on the birds of this district from my note-book: they have been taken from day to day, during a short residence at Grasmere, and I now give them, trusting they will

not be found altogether devoid of interest to the readers of the 'Zoologist.'

Peregrine Falcon.—A pair of peregrines have now for three years had their eyrie in an almost inaccessible precipice, flanking Helvellyn, and for two years brought off their young unmolested. This summer the eyrie was reached from above, by a Grasmere stone-mason, and the two young falcons taken. The mother, strongly protesting against the abduction of her young ones, was cruelly shot by this same fellow; but he did not get his victim, as she fell, lodging on the face of some inaccessible rocks: one of these young falcons died a few days after its capture; the other I saw in the possession of this man, and intended purchasing it before leaving the district; unfortunately, however, it also followed in the steps of its comrade—drooped and died. Thus, in little more than a week, three out of four of probably the only peregrines in the Lake district have uselessly perished. In these days any notice of our noblest and rarest birds of prey is little more than a record of their destruction.

Common Buzzard.—Buzzards are, I am very glad to say, as yet far from uncommon: I found two pairs, and heard of another pair, in the neighbourhood of Grasmere, first seeing them near the rocks above Grisdale Pass, near Grisdale tarn. I was resting on the short turf near the Patterdale end of the tarn, and (for it was intensely hot and close) under the shadow of a great rock—a huge boulder—all spotted with yellow and gray lichens, and a great pink boss of that lovely arctic plant *Silene acaulis*; many a mountain ramble in bygone years did that bonny little plant bring to my recollection: not a ripple crossed the surface of the tarn—itsself a mirror, reflecting the green hill-sides, the glorious blue sky, and those light cirrus clouds, now resting almost motionless, far above the stony crest of Fairfield: for a time the only sound was the monotonous chirp of the little brown pipit; then from the higher crags came the harsh croak of a raven, and a pair of these birds dashed downwards across the tarn, closely pursued—yes, *closely* pursued—by two buzzards. We are told the buzzard is a cowardly fellow; he will fly before the magpie and jackdaw: there was certainly an exception in this case, for the ravens had unmistakably the worst of the encounter, nor did the buzzards desist from the pursuit of the vanquished, till they had fairly driven them across the crest of Seat Sandal. Perhaps *Corvus corax* had been prying too closely into the domestic arrangements of the buzzards, and hence this display of wrath: and now began a magnificent spectacle; the two

hawks, satisfied with their victory, began wheeling in wide circles above the little lake, the one bird keeping somewhat higher than the other, and at an opposite point of the circle, and thus they rose in this wonderful spiral flight, circle above circle, to an immense height, their broad and rounded and somewhat ragged wings perfectly motionless, the primary quills somewhat curved upwards, and thus, circle above circle, now mere larks in size, but still circling, till the wearied eye failed to follow them as they vanished against the intense blue of heaven. To my fancy this ignoble buzzard is one of our noblest birds of prey: when seen amidst wild scenery, they always harmonize with surrounding objects, and I know no bird which excels them in stateliness and magnificence of flight—no, not even the royal eagle himself.

July 1st. To-day, when descending the rocks between Easdale and Codale tarns, disturbed a pair of buzzards, and think they had a nest not far off, as the hawks were greatly disgusted, flying backwards and forwards over my head, constantly uttering their wild and melancholy cry of “Kei-er, kei-er.” In the evening went to look at a young buzzard at the house of a labourer at Grasmere. A very fine healthy looking bird; the man said he had taken it from the nest on the rocks, a few days since, somewhere between Steel Fell and High Raise, and that it was the only one in the nest.

Raven.—Common on the higher fells, and generally nesting on the most inaccessible precipices.

Spotted Flycatcher.—Very common in all the well-wooded and cultivated portion of this district, particularly in the woods and gardens bordering the great lakes.

Pied Flycatcher.—Not uncommon in the neighbourhood of Grasmere; more generally found about the skirts of the woods and plantations on the fell-sides and bordering the lakes than in the gardens and pleasure-grounds, *par excellence*, the haunts of its spotted cousin. First met with this little bird on the outskirts of Grasmere village, near the Red-bank road; was attracted to the spot by its song, a most pleasing little song, and one then quite new to me: the little warbler was sitting on the bough of a pollard-ash; it was by no means shy, permitting a close approach. It is not easy to represent the notes of a small bird on paper; I put them down in my note-book at the time as resembling the words “Twe-tweetle, tweetle, tweetle, twote.” It is a merry rattling little song: twice the little fellow paused, dashing out to capture a passing fly. After this had not an opportunity of

prosecuting the search after the pied flycatcher for some days. On the 2nd of July gave up an afternoon for that purpose. Was informed I should probably find them in the plantations skirting the foot of Silver-how; and was not disappointed, first finding a beautiful male, hawking for flies from a rail-top: his manner of capturing them was peculiar, sometimes taking one on the wing, but generally flying down amongst the long grass, clinging for an instant to some bent, or flower-stalk, and *picking off* an insect, between each capture returning to the rail-top. The colours of the bird are so clearly marked, and show so strong a contrast, as to lead to its instant recognition, even at a considerable distance. A little higher up on this fell-side found a male and female with four young ones: the parent birds were hard at work catching insects for their family, perched on the adjoining bushes: one little fellow was bathing himself in a pool of water below the tall fern-fronds, seemingly deriving intense pleasure from the operation; another was foraging on his own account, sitting in the midst of an hazel, and picking the small flies from off the bright green leaves. The old birds seldom took a fly on the wing, either alighting for that purpose for an instant on the ferns and grasses, or, clinging to the bole of some tree, would pick out the insects from the interstices of the bark: observed them do this repeatedly, both from the oak and the smoother bark of the birch. All this passed within a few yards, as I lounged against the railings; I might indeed have been part of the fence, so little did they heed my presence, often alighting within a dozen feet. They are a smaller bird than the spotted flycatcher. In the female the colours are not as distinctly marked as in the male: the young birds might easily be mistaken for those of the spotted flycatcher: the quills and tail are dark or black-brown; a portion of the outer tail-feathers white; centre of wings dull gray, showing, when the wings are closed, a broad indistinct gray streak, in the place of the pure white of the adult; upper parts brown; under parts dull gray, on the neck and breast streaked with wood-brown. In the adult the pure white on the secondaries and primaries, when the wings are closed, contrasting with the black back, gives the bird the appearance of wearing a black mantle with a broad white border.

Ring Ouzel.—Common on the higher fells; observed several young birds during the last week in June.

Redstart.—Next to the spotted flycatcher the most frequently met with of any of our summer visitors, and may be seen as far up on the fells as any trees or brushwood are found.



Stonechat.—Not nearly so common as the redstart, yet generally distributed through the district. Never saw this bird on the top of the higher fells, invariably finding it from the base to rather more than half-way up to the summit. Did not observe the whinchat in the neighbourhood.

Wheatear.—Common, more particularly in the elevated fell district; seen on the summit of all the highest hills. One day saw a male of this species, with a fly in his mouth, alight on the branch of a spruce-fir.

Pied and Gray Wagtails.—Common, and equally distributed. I did not see one common yellow wagtail (*Motacilla Rayi*) anywhere in the neighbourhood of Grasmere.

Tree and Meadow Pipits.—The tree pipit, I fancy, is a scarce bird in this district; have only once heard it. The meadow pipit is everywhere common, from the cultivated valley to the tops of the highest and bleakest fells, where, often for miles together, its simple little song is the only indication of bird-life.

Mountain Linnet.—Not uncommon; observed several in the vicinity of Fairfield and the Grisdale Pass.

Swift.—Only once seen; I was then on the highest point of the Borrowdale Fells, the wind north, and, in that elevated region, bitterly cold, and I was only too glad to get under shelter of the nearest rock: on looking upwards from this point could just discern a party of swifts hawking; they were scarcely distinguishable, although the air was remarkably clear: I judged them not much less than three thousand feet above the summit of the fell, itself nearly three thousand feet above the sea-level. To what an immense height had these swifts ascended, and what insects would they find in that "cold thin atmosphere?" Probably, however, in those higher regions, a warmer current of air was blowing from the west or south.

Fern Owl.—Not seen, but, in the pleasant summer nights, frequently heard; evidently are no strangers in the woods which girdle Grasmere Lake. Often late in the evening, when all was still, have I paused in rowing over the lake, to listen to the strange notes of the night birds. A concert not equal to that wonderful burst of melody we may sometimes hear in early morning, when blackbird and thrush, and all the rest of our little early-rising warblers are pouring forth their morning hymn of praise, and greeting the rising sun with such a burst of melody as no combination of human voice and instruments can rival, or even distantly approach unto; yet it was a concert worth listening

to, and although the notes were not so musical as those of the day warblers, yet they seemed well suited to the time and scene; for all the owls on Redbank were hooting, and an answering challenge, softened by distance, was returned from their brethren on Fairfield; and between the shoutings of these noisy owls, came another sound, less distinctly heard, but more prolonged, that seemed to run all up and down along the dark wood-side,—once heard not to be forgotten,—the jarring note of the night-hawk, that peculiar burring, long-drawn note, a sound which is so totally unlike that made by any other bird, and the locality of which it is so difficult to fix; and, nearer still, from amongst the reeds and water-lillies, and along the margin of the placid mere, coots were clanking, the restless sandpipers whistling; and, not to be put down by any of them, the little reed wren rattling away at its own wild song, and, not content with that, appropriating the notes of many another bird then quietly at rest in the woods of Silverhow.

Dotterel.—All endeavours to find these birds have been unavailing: I have walked upwards of one hundred miles over these hills, the greater portion of this distance over very likely dotterel-ground, without either seeing or hearing any; and yet almost everyone spoken to on the subject,—guides, shepherds, &c.,—tells me that they may still be found in the district, some years indeed in considerable numbers. All agree that this year they are few and far between; and I believe this is the case, as I certainly must have either seen or heard some in the ground walked over. They arrive in this district about the last week in May, and are then much sought after by local fly-fishers for the sake of their feathers. A gentleman at Grasmere told me that he had this season given half-a-crown for one; and another person informed me he had been out frequently on the fells with his gun, but had not yet met with any. A shepherd had seen them lately on Helvellyn; and a car-driver at Keswick told me that a few weeks since he took a nest, containing two eggs, on one of the neighbouring fells. Have frequently been told I should certainly find them on such a hill, or range of hills; every attempt, however, and I gave up a large portion of my time for this purpose, ended in disappointment.

Golden Plover.—Not uncommon on the higher fells, where they breed. Saw several pairs of golden plover on the Borrowdale Fells, a situation well adapted for their summer residence. These fells comprise Bleaherry Fell, High-seat and High Raise—a great wild moorland, miles in extent, seldom visited except by the hill shepherds: it contains extensive bogs,—now white with cotton-grass,—some miles

of heather and rein-deer moss, and a considerable extent of hill-pasturage, sedges and the great hair-moss. I saw no young plovers; the old birds were generally in pairs, and I remarked they were much tamer and less suspicious than when last I had the pleasure of seeing them in the North Lincolnshire marches.

Sandpiper.—Common on the shores of all the lakes and tarns in this district. I saw a sandpiper fly up from the side of the lake and perch on the slender bough of an alder-tree, where it remained for some time.

JOHN CORDEAUX.

Grasmere, July 3, 1867.

Ornithological Notes from Norfolk, for March, April, May and June, 1867. By HENRY STEVENSON, Esq.

(Continued from Zool. S. S. 730.)

Brambling.—These birds were still with us, in some numbers, up to the 26th of March, on which date I was shown some half-a-dozen, out of at least twenty specimens; which had been killed with poisoned wheat at Flordon, near Norwich. This abominable practice is still, I regret to say, in defiance of legal enactments, pursued by certain farmers in this district, and, as in this case, birds both useful and ornamental are sacrificed in a wholesale manner through the obstinacy and ignorance of individuals. The male birds were in full change, and fast assuming the black head of their summer plumage.

Twite and Mealy Redpole.—The male of a pair of the former species, killed at Beeston, near Cromer, on the 22nd of March, showed the rich flame-colour on the upper tail-coverts; and a mealy redpole, with red head, breast and tail-coverts, was netted near Norwich about the 25th of May, an unusually late appearance.

Cormorant.—A fine adult female, showing the white patch on the thigh, was shot at Burgh, near Yarmouth, on the 27th of March. The ovary contained some eggs as large as small peas. In the stomach was found a sharp-nosed eel, about fifteen inches and a half long, and the remains of two others; also about twenty white worms, measuring from one inch and a half to one inch and three-quarters in length, some of which adhered to the coats of the stomach, whilst others were detached. Mr. J. Gunn also found similar worms, and about the

same size, in the stomach of a common guillemot killed on the 16th, and in this case the interior of the bird's throat exhibited several small ulcerated spots about the size of pin's heads. On the 6th of May, whilst inspecting a thriving colony of blackheaded gulls on Hoveton Broad, another fine old cormorant passed over the water near enough to show the white feathers about the head.

Woodcocks Nesting.—On the 17th of May a fine young bird was sent up to Norwich for preservation, being one of four hatched in a plantation at Burlingham, near Norwich, belonging to Mr. H. N. Burroughes. A second nest was also found this year at Attlebridge, and a pair seen, on the 6th of May, at Hoveton, have, I believe, remained there to breed.

Black Stork (*Ciconia nigra*).—I have much pleasure in recording what I have every reason to believe is the first known instance of this fine species having occurred in Norfolk. This noble bird, which had been seen at different times for nearly a week, by Mr. Hamond's keepers, frequenting some meadows on the banks of the Nar at Westacre, was at last shot about four o'clock in the morning of the 19th of May. Its plumage showed no signs of having been in confinement, and the bird, owing to its shyness, was obtained with much difficulty. It proved, on dissection, to be an adult female, weighing over seven pounds, and measured, I am told, six feet two inches from tip to tip of wings.

Martin.—A young male, having partially assumed the adult dress, was shot at Beeston, near Cromer, on the 25th of May, but this species is not often met with at this season of the year.

Hoopoe.—I have seen but two specimens killed here this season, one shot at Northrepps on the 21st of May, and one at Rollesby on the 25th.

Puffin.—An adult female, in full plumage, was picked up dead at Beeston about the 19th of May. This bird was in rather poor condition, but showed no signs of having been wounded. This species is but rarely met with on our coast, and then for the most part after violent gales in autumn or winter.

Osprey.—Besides the one recorded by Mr. Gunn (S. S. 823) as killed at Blickling, an adult male was shot at Hempstead, near Holt, on the 13th of June. Though in full plumage this is the smallest specimen I ever saw in this county.

Crossbill.—Several of these erratic visitants have appeared during the spring months. On the 2nd of April a male, in mingled red and

yellow plumage, was shot at Mousehold, near Norwich; on the 25th of May two red males and one female at Rollesby, near Yarmouth, and on the 27th and 28th two red males, one male yellow and red, and three females, in the same neighbourhood, no doubt members of the same flock.

HENRY STEVENSON.

Norwich, July 5, 1867.

Summer Migrants, &c., near Norwich.—The following are the earliest dates of the appearance of some of our summer migrants in this neighbourhood, according to my own observations:—

March 22. Willow warblers and chiffchaffs plentiful about the woods and sheltered localities. The garganey or summer teal appears pretty numerous in the vicinity of Yarmouth: a beautiful male was killed at Reepham.

March 27. Wheatear.

- April 1. A nest of the song thrush, with young about a week old.
 „ 2. An adult male crossbill shot at Mousehold.
 „ 3. Spotted crane: several specimens have been obtained.
 „ 6. Cuckoo heard.
 „ 7. I saw two house martins, about 11 A.M.; they were flying low near my residence.
 „ 10. Several sand martins near the river.
 „ 11. Wryneck.
 „ 13. Yellow wagtail, which appears somewhat plentiful this season compared with previous years. See note on grayheaded wagtail (S. S. 824).
 „ 14. Nightingale heard.
 „ 16. Redstart (male) seen.
 „ 17. Ring ouzel.
 „ 19. I saw a blackcap (male), the cuckoo and nightingale.
 „ 25. Saw a lad with a nest of nearly fully fledged blackbirds.
 „ 26. Dunlius in summer plumage, shot on the coast, also adult males of the lesser blackbacked gull, kittiwake gull and common guillemot.

May. During the course of the first week swifts and redbacked shrikes were seen. I examined the stomach of a specimen of the latter, and found it filled with the remains of a blue tit.

May 13. An immature specimen of the rook, with its entire plumage of a dark ash-colour, was shot at Elmham, near Swaffham.

May 17. Whimbrel (a female) shot on the beach near Beeston Regis.

May 22. Hoopoe (a splendid male) shot in the vicinity of Rollesby: the contents of its stomach were several skins of some lepidopterous larvæ and three or four small brown spiders.

May 22 to 29. Crossbills rather plentiful in the vicinity of Yarmouth: as many as nine specimens, in various stages of plumage, were sent me for preservation between these dates: the contents of their stomachs, in every case, comprised a mixture of fir-seeds and small grit.

May 28. A beautiful adult male of the mealy redpole, in full summer plumage, was shot at Burgh, near Yarmouth. This species is a regular winter visitor to Norfolk, but its occurrence in the summer season is very rare, this being the only instance I have noticed for several years. The lesser redpole, on the contrary, is now quite a resident: I have received the nests and eggs from several different localities—from one in particular where several pairs have bred for six or seven years in succession.

June 3. I dissected three specimens, two males and a female, of the nightjar, and found the stomach of the first to contain one beetle; the second, one beetle and a cockchafer; and the third, as many as four beetles and some small moths: the whole of the beetles were quite entire; a pair of the finest specimens I have cleaned and placed in my cabinet. This is one of my favourite modes of collecting Coleoptera, and I have obtained a great number of species by the examination of the stomachs of birds that pass through my hands—many perhaps that I should not otherwise have obtained.

June 12. Quail: a male shot near Norwich. I examined the stomach of an adult male cuckoo, and found two distinct circles of hairs attached to the inner membrane, arranged in precisely the same systematic manner as in the former example I recorded in the 'Zoologist.' I gave the stomach, &c., to Mr. H. Stevenson, of this city, who has also examined it.—*T. E. Gunn*; 21, Regent Street, St. Giles Road, Norwich.

Arrival of Immigrants at Looe.—On comparing the arrivals of the summer visitants here with those recorded in the 'Zoologist' for July, I find they arrived here earlier than in most other places, so I am induced to send my notes of seeing them here:—

Wheatear. March 15. One solitary bird: soon became abundant.

Chiffchaff. March 22. Saw three, the snow falling heavily at the time; wind N.E. strong.

Sand Martin. March 23. Two hawking about; watched them more than half an hour, when they made a sudden dash to the eastward, and I did not see any more for a fortnight. Wind N.E., strong.

Tree Pipit. March 24. Within three or four yards of me; the earliest I have ever noted. Wind N.E., cold.

Swallow. April 10. A single bird: saw many within the week. Wind N.E., with heavy rain.

Cuckoo. April 12. This is only hearsay. I was walking with a gentleman in the country, talking of various matters, not ornithological, when he suddenly exclaimed, "There is a cuckoo!"—that is, he heard it. I am unfortunately so deaf that I shall never hear another. I have no reason to doubt that it was heard by him.

Martin. April 28 (almost the first fine day we had in the spring). I saw but one, which flew from a nest of last year; therefore I conclude it must belong to us: not many seen for a week or more.

Swift. May 3. A flight of eight, which I believe remained here: more abundant than usual; I counted yesterday, as well as their rapid movements would allow, seventy-three in one flight. Whether they are collecting together for migrating I do not know. I shall watch them closely. I think it not likely, as they do not usually leave us before the middle of August.

I am pleased to see the extract from the 'Field' newspaper (Zool. S. S. 827), which so fully corroborates my published opinions as to the nesting of the kingfisher.

Cuckoos have been much more abundant than for years past.—*Stephen Clogg; Looe, July 5, 1867.*

Varieties of Birds' Eggs.—The following varieties of eggs were taken in Sutherland in May and June, 1867:—

Merlin. One egg, of the usual size, but containing no yolk, of a dark sepia colour, almost approaching to black.

Redthroated Diver. One egg of a pale green ground colour, with one or two large blotches of reddish brown. Bird shot. Another egg was similarly marked.

Hen Harrier. Five eggs, three of which were much spotted with minute red specks. Mr. Wolley's old correspondent in Sutherland assured me that he had often seen them even more spotted than in this nest.

Blackheaded Gull. One pale blue egg—a common variety.

Dunlin. Four eggs, which were so exactly similar to those of the common sandpiper that had not both my friend Mr. Jesse and myself, as well as the gillie, seen the bird fly off the nest and be joined by the male bird, I should at once have pronounced them eggs of the common sandpiper. Another gentleman took a nest of four eggs precisely similar. My eggs were larger than the type dunlin's eggs, and the large end had the spots and markings very minute, and not circled round it as is usually the case. One egg had a thin shell, and was almost without markings.

Puffin. One egg, much more spotted than I ever saw before: a very handsome variety.—*John A. Harvie Brown; Dunipace House, Falkirk, July 3, 1867.*

Pied Wagtail wintering in North Yorkshire.—This beautiful and useful little bird has always been described as migratory, leaving us (in North Yorkshire) at the latter end of September and returning again at the latter end of February or beginning of March, when bean-sowing commences; and so regular was their return as to give rise to a proverb, "Sow beans when the wagtail returns." In 1862 I was told by Mr. R. Barton, a gentleman farmer living in this village, that there was a flock of wagtails amongst his sheep. I thought he was mistaken, and said so, for it was in December: on going to the field—a turnip-field eaten on with sheep—I found a flock of fifteen wagtails busy amongst the sheep, hunting among their feet and about their heads as they grazed. The shepherd told us that they also picked up the grubs from the turnip-roots which were exposed when the turnips were pulled up. They looked as lively as in the spring months, and my friend, a gentleman of great experience in such matters, assured me it was the first time that he had ever known them stay beyond September. In 1863 and three following years, and all through the severe snow-storm and hard frosts of 1867, they have continued with us. During the late storm of frost and snow they visited the village, and were seen hunting in the streets, fold-yards, back-yards and gardens; but they left for the fields upon the breaking up of the frost, returning to their old haunts at the usual time. I am at a loss to account for this sudden change in their usual habits, for it does not admit of a doubt that they were, before the time mentioned, so far as this place is concerned, migratory, leaving us in September and returning so regularly as to give rise to the country saying already quoted. I called attention to the fact at the time, in the 'Zoologist,' and I see that it has again been referred to (S. S. 634 and 704), and I have during the last three years received several communications from my naturalist friends upon the same subject, so that it is evident this alteration in their habits is not local.—*John Ranson; Linton-on-Ouse, near York.*

The Rock Pipit in Norfolk.—In reply to Dr. Bree's remarks on this species (S. S. 792), I must admit that it is very singular that the rock pipit should breed regularly on the Essex coast and not on our own; but without any, even the slightest, evidence of its doing so, it was impossible for me to include it amongst the residents in my 'Birds of Norfolk.' I have searched for this bird myself repeatedly during the summer months on almost all parts of the coast, at Cromer, Sherringham and Maudsley, at Hunstanton, near Lynn, at Yarmouth, and at Lowestoft, in the adjoining county, yet though well acquainted with the form and colouring of the species, and the difference between its note and that of the meadow pipit's, I have never met with it here. Until the spring of 1864 a Norfolk-killed specimen was a desideratum in my collection, although I had repeatedly offered a good sum for one to our local birdstuffers. During seventeen years I have known of but three specimens killed in this county, one (as I have elsewhere stated) shot at Yarmouth, in February, 1855, during severe weather, and two in the spring of 1864 by the river-side near Norwich, one of which corresponds with the *Anthus rupestris* of Nilsson. These two I still believe, as stated in my 'Birds of Norfolk,' vol. i. p. 170, "were passing over in their migratory course, and had paused a little while to rest and feed," not *breed*, as occurs, through a misprint, in Dr. Bree's quotation. Were the rock pipit otherwise than a rare bird in Norfolk I cannot understand why it should be so comparatively unknown to our resident birdstuffers. I never saw and never heard of any one who had taken a nest of this species in Norfolk, although we abound in zealous egg-collectors, and surely amongst the numbers of meadow pipits to be seen at all seasons, with other common species, in the shops of our bird-preservers, the rock pipits, if common, would occur as well: such, however, is not the case. Even at Yarmouth, where, owing to the tidal waters of Breydon, one would expect to find it rather plentiful, the Messrs. Paget merely remark that "a few are occasionally seen about Breydon wall," and I can hear nothing more decided as to its habits, in that locality, to the present time, although probably, if carefully watched for, it would be observed there as a migrant in spring and autumn. In some localities in the South of England, especially in places having a rocky shore, I have found this pipit taking the place, as it were, of the common titlark in the vicinity of the coast: on our shores the titlark reigns supreme, and this, as far as Cromer and its neighbourhood is concerned, I can vouch for, from personal observation, as well in autumn and winter as in summer and the early spring. The difference between the rock pipit and the meadow pipit, when observed feeding together, is very marked, as I had a good opportunity of noticing two years ago, on the summit of the Freshwater cliffs, in the Isle of Wight, where I found a small flock of each species feeding on the bare spots from whence the turf had been dug, and the difference in their notes, as they rose, was also plainly perceptible. Having stated, then, all that I do know respecting this species in Norfolk, I am as far as ever from being able to solve the mystery, why the rock pipit should not breed with us, though known to do so, as Dr. Bree states, on the cliffs about Walton and Felixstow.—*Henry Stevenson; Norwich, July 5, 1867.*

Young Hawfinch at Alton in June.—Last week I had an old male and a young hawfinch brought me: never having heard of their being seen in this neighbourhood except during the winter, I thought the fact of their breeding here should be recorded in the 'Zoologist.' I am having both birds preserved.—*Philip Crowley; Culverton House, Alton, July 3, 1867.*

Scarlet Bullfinch (*Carpodacus erythrinus*) in *Sussex*?—During a recent visit to Lewes I had the pleasure of examining a most beautiful collection of British birds, the property of Mr. Thomas Monk, of that town. The birds were all stuffed by that excellent taxidermist, Swaysland, of Brighton, and amongst them were many of our rarest visitors: the genus *Anthus* was represented by six, *Motacilla* by five and the family *Emberizidæ* by seven species. Amongst them was a finch which specially attracted my attention: Mr. Monk called it the “unknown finch.” The appearance of this bird was something like a very large linnet (*Linaria cannabina*), but with a beak much larger, and in colour reminding me more of the young green linnet; in fact, it looked like a hybrid between the two species. It could scarcely, however, be a hybrid, because several have been taken near Brighton in different years, and it is also very improbable that two such common species would hybridize in a state of nature; the puzzle therefore was, what species could it be? I considered it must be a European bird, and probably, from occurring every autumn, a migratory species, not very rarely met with on the Continent. It might also be expected to be a young bird, for it rarely happens that stragglers are old birds; the latter during their passage follow the course known to them by previous experience, but, on the other hand, young birds when deprived by accident or otherwise of the guidance of their mature parents often stray in their migrations from the direct course. I feel therefore certain, in my own mind, looking at the general structure and size of the specimen, that it is the *Fringilla incerta* of Risso, which is no other than the scarlet bullfinch (*Carpodacus erythrinus* of Gray and others). Had the bird ever occurred in the adult plumage, I doubt not but that it would long ago have been known as an occasional visitor to this country, but the birdcatchers have always supposed it a hybrid, and attached therefore but little importance to the capture. If my supposition be correct it affords another illustration of the fact that immature specimens present much better evidences of affinity than mature; even the young goldfinch is not very unlike a young linnet.—*J. Jenner Weir*; 6, *Haddo Villas, Blackheath, S.E.*, July 10, 1867.

PS. I placed my communication on the subject of *Carpodacus erythrinus* in my pocket, with a view to leave it at Devonshire Street, but on my way called at a bird-dealer's: he produced a bird, such as, he said, he “never saw before.” What was my surprise when my eyes rested on another specimen of the species or hybrid adverted to! This specimen had been in captivity three months; it differed from the Lewes specimen in having the front of the head and the breast of a bright golden colour, as if the nuptial rosy tint of *L. cannabina* had been reproduced in the hybrid. The bird was smaller than the green linnet; the tail resembled the latter bird in colour and the beak in shape. I can well imagine such a bird being called *Chlorospiza incerta*, as it was by Buonaparte: my opinion, however, is somewhat shaken, and I know not whether to consider the birds under consideration hybrids or not. The subject is an interesting one, and should, I think, be investigated.—*J. J. W.*

Magpie with a Yellow Beak.—I may mention with regard to this bird, which seems to have excited a little interest in the ‘Zoologist,’ that both Mr. Young and myself observed that the yellow colour appeared to be very bright and distinct. Had the bird been simply feasting on eggs I scarcely think that the whole of the black on the bill would have been so regularly and universally concealed. This is of course mere supposition on my part. At the same time I consider that your correspondent Mr. Beckwith (S. S. 826) is right when he considers it an unlikely circumstance that

a bird would cross America and appear on our east coast; but is it not likely that it might be an escaped bird, brought over by some sailor to the port of Grangemouth or some other? Sailors are often much given to bringing home curiosities. I do not think that had Mr. Beckwith seen the bird as closely as we did, he would unhesitatingly have pronounced the yellow to be the effect of colouring matter. My friend Mr. Young, however, was much more positive that it was not such than I was. I may further mention that I did not observe the "naked skin around and behind the eyes, which is bright yellow," mentioned by Professor Newton (S. S. 757) as being present in *Pica Nuttalli*. The Professor again says, however, that in his figure of the bird in the 'Atlas' there is no appearance of this bare yellow skin round the eye. I am afraid that no satisfactory conclusion can now be arrived at with respect to this yellow-billed magpie.—*John A. Harvie Brown*.

Scaup Duck breeding in Britain.—In the 'Zoologist' for July (S. S. 811) your correspondent Mr. Cordeaux asks if there is any well-authenticated instance of the scaup remaining and breeding in Great Britain. I quote the following from Mr. Selby's "List of the Birds inhabiting the County of Sutherland," as observed by him when visiting that county in 1834:—"Scaup Pochard (*Fuligula marila*). A single female was shot by Sir William Jardine in a small loch between Loch Hope and Eriboll: she was attended by a young one, which unfortunately escaped among the reeds. This is the first instance of its breeding in Britain having been ascertained that I am aware of."—*Id.*

Puffins on the Norfolk Coast.—An immature female of the puffin was shot about the 22nd of March on the beach near Breston Regis. On the 19th instant an adult female was picked up dead on the beach in the same locality. The occurrence of the puffin is rather unusual at this season of the year on the Norfolk coast, and therefore I think it had probably been driven from the northern coast, and fell exhausted and was washed ashore: I could find no indication of any wounds or injury when skinning the bird, although I closely examined it.—*T. E. Gunn*.

Scyllarus arctus on the North Coast of Cornwall.—You can note the occurrence of *Scyllarus arctus* at Sennen Cove, a white-sand (*i. e.* gulf-stream) bay on the north coast of Cornwall, just east of Land's End. The specimen is a female in berry, but was dead when brought to me.—*Thomas Cornish; Penzance, July 8, 1867*.

Note on the Voracity of the Bornean Crocodile.—Several years since the late Captain Richard Glasspoole presented to the Norwich Museum a fine skull of the above-mentioned crocodile (*Crocodilus biporcatus* of Cuvier), accompanied by the following account, which I believe has never been published, and which therefore appears to me, though not of recent date, to be worthy of record in the pages of the 'Zoologist':—"The formidable animal from which this head was taken measured nearly thirty feet in length, and was caught, in the year 1827, in the river Benja-Massa, in Borneo, where it had long been a terror to the neighbourhood. A few weeks previous to its capture it attacked two men on a raft, father and son: it caught the son by the arm and took him under water, the father jumped into the river to rescue him when the animal left the son and devoured the father: the son reached the shore much injured. It soon afterwards upset a canoe and devoured the chief of a Malay

village, whose relations made a vow to revenge themselves, and after long watching succeeded in destroying it: part of the clothing and ornaments of the chief were found in the stomach. This account was given by the Dutch Resident De Groot to Captain Henderson, who presented the head to Captain Richard Glasspoole." This skull has lately been examined by Dr. J. E. Gray, who informs me that it belongs to the species above referred to, which occurs not only in Borneo, but also in some of the estuaries of India, as well as in those of Northern Australia. In confirmation of the great size to which this reptile attains, I may, in conclusion, quote the following remark from Mr. Adams's 'Notes on the Natural History of the Countries visited by H.M.S. Samarang' (p. 365):—"The crocodile (*Crocodilus biporcatus*) must occasionally attain to a very large size in Borneo; judging from an enormous skull found whitening on the beach, the owner must have been at least twenty-eight feet long."—J. H. Gurney; June, 1867.

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

July 1, 1867.—Sir JOHN LUBBOCK, Bart., President, in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—
'Exotic Butterflies,' Part 63, by W. C. Hewitson; presented by the Author. 'The Entomologist's Monthly Magazine' for July; by the Editors.

Election of Member.

Dr. George William Davidson, of 13, Union Place, Edinburgh, was ballotted for, and elected a Member.

Exhibitions, &c.

Mr. Busk (who was present as a visitor) mentioned, on the authority of Dr. Cobbold, that the small worm exhibited at the previous Meeting was not *Gordius aquaticus*, but *Mermis nigrescens*.

Mr. M'Lachlan exhibited *Ciniflo ferox* from Folkestone, where that spider had been captured by Dr. Knaggs; and living specimens of a spider and a large centipede, which were found in the hold of a ship recently arrived from Manilla with a mixed cargo, principally consisting of sugar and hemp.

The Secretary exhibited branches and the fruit of an orange-tree infested with some insect, with regard to which information was requested by Mr. Charles Moore, Curator of the Botanic Garden, Sydney, New South Wales. Prof. Westwood discovered two species of *Coccus* upon the branches, but was unable to detect anything but mould upon the fruit.

Mr. Stainton exhibited a collection of Micro-Lepidoptera obtained from the larvæ which he had collected whilst at Cannes and Mentone in February and March: the collection comprised upwards of thirty species, amongst which may be specially mentioned a fine series of *Depressaria rutana*, from larvæ on *Ruta angustifolia* on the rocks at Monaco; a specimen of *Phibalocera quercana*, bred from *Arbutus*; two species of *Gelechia*, bred from larvæ feeding on *Silene Nicæensis*, and forming sand-cocoons amongst the roots of that plant (one species being probably identical with our

G. marmorea); a new species of *Zelleria*, allied to *Z. hepariella*, for which M. Millière proposes the name of *Phillyrella*, bred from the flowers of *Phillyrea angustifolia*; and a *Nepticula*, bred from the cork-tree. Mr. Stainton remarked that, in addition to the species bred, there were a number of different larvæ which he failed to rear, and among them was another species of *Nepticula* on the cork-tree with a very peculiar mine.

The Hon. Thomas De Grey exhibited *Eupæcilia anthemidana* and *E. rupicola* from Norfolk; and mentioned that he had on the previous day captured in Kent five specimens of *Hypercallia Christienniana*.

Mr. A. R. Wallace exhibited a collection of Malayan *Cetoniidæ*, in illustration of the paper mentioned below.

Papers read.

"Observations on Dzierzon's Theory of Reproduction in the Honey-bee," by Mr. John Lowe, of Edinburgh. With a view to test the truth of the theory that "all eggs which come to maturity in the two ovaries of a queen-bee are only of one and the same type, which when they are laid without coming in contact with the male semen, become developed into male bees, but, on the contrary, when they are fertilized by male semen, produce female bees," from which theory, if true, we might, in the words of Von Siebold, "expect beforehand that by the copulation of a unicolorous blackish brown German and a reddish brown Italian bee, the mixture of the two races would only be expressed in the hybrid females or workers, but not in the drones, which, as proceeding from unsecundated eggs, must remain purely German or purely Italian, according as the queen selected for the production of hybrids belonged to the German or Italian race," the writer set to work to obtain hybrids between *Apis mellifica* and *Apis Ligustica*, and also between *Apis mellifica* and *Apis fasciata*, and the result of his experiments was that Ligurian queen-bees fertilized by English drones and Egyptian queen-bees fertilized by English drones, both produced drones which, as well as the workers, were hybrid in their characters, and bore unmistakable evidence of the influence of the male parent. From this the Author drew the conclusion that the eggs of a queen-bee which has been fertilized by a drone of another race, whether they develop into drones or workers, are in some way affected by the act of fecundation, and that both sexes of the progeny partake of the paternal and maternal character or race; from which it followed that Dzierzon's was not the true theory of reproduction in the honey-bee. Specimens of the hybrids were exhibited to the Meeting, and Mr. Frederick Smith (who did not consider *Apis Ligustica* to be specifically distinct from *Apis mellifica*), after an examination of the specimens, corroborated Mr. Lowe's statement that the hybrid drones distinctly showed characters peculiar to *Apis mellifica* in combination with the characters which distinguish *A. Ligustica* and *A. fasciata* respectively.

"A Catalogue of the *Cetoniidæ* of the Malayan Archipelago, with Descriptions of the New Species," by Mr. A. R. Wallace. In this Catalogue 181 Malayan *Cetoniidæ* are enumerated, 70 of them being described as new.

New Part of 'Transactions.'

A new Part of the 'Transactions' (Third Series, Vol. iii. Part 4), being the third Part published during 1867, and containing a further instalment of Mr. Pascoe's "*Longicornia Malayana*," was on the table.—*J. W. D.*

Notes on the Folk-lore of Zoology. By EDWARD R. ALSTON, Esq.

FOLLOWING in the path in which my friend Mr. Harting has so ably shown the way, I propose to throw together a few notes on the folk-lore of our Science, that is, on the various legends, superstitions and popular beliefs concerning animals. In old days many of these were articles of faith with refined poets and grave philosophers; now they only find refuge with the uncultivated and ignorant, and even there the spread of education and intelligence is fast rooting them out. Still they are of interest, both to the antiquarian and the naturalist, and therefore I have collected the following observations from various sources, trusting that other readers of the 'Zoologist' will be able to add to them, and thus preserve interesting information from being lost. In order to keep the matter within reasonable bounds, I have confined these notes to the vertebrate fauna of Europe.

I. QUADRUPEDES.

Bat.—The bats, with their weird appearance, shadowy flight and nocturnal habits, have been beasts (or birds) of evil omen from the earliest times; their habit, too, of haunting churches, ruins, caves and other ghostly localities, has assisted in the formation of their bad character: no poet omits them in his fearful scenes, while painters and sculptors have adorned the devil and his imps with bats' wings from time immemorial: the consequence is that to this day many people would rather not meddle with a bat, although not able to say what harm it can do.

Hedgehog.—The hedgehog is another victim of slander. Not contented with his real sins against game and poultry, the *vox populi* must needs accuse him of milking the cows, and also of climbing apple-trees, shaking down the fruit and then rolling on it so as to carry it off impaled on his spines! Nor was this all, according to Pliny the hedgehog maliciously destroys the value of its skin, used as a hackle by the Romans, by voiding a stinking secretion on it in the moment of death (*Bell's 'Quadrupeds'*). Then it, too, was a beast of evil omen, and as such is introduced by Shakespeare:—

"1st Witch. Thrice the brindled cat hath mewed.

2nd Witch. Twice and once the hedge-pig whin'd."

Macbeth, Act iv. Scene 1.

So that altogether the poor hedgehog seems to have lost in popular story what little character he ever possessed.

Common Shrew.—But of all ill-treated animals surely the poor “erd-shrew” was the worst used. Perfectly harmless, and even useful, he has been marked by popular belief as poisonous and hateful, and the remedies to be applied to those he afflicted generally involved the death or torture of the wretched animal. It would be unnecessary to quote White of Selborne’s well-known account of how a “shrew-ash” was made, *viz.* by plugging the unfortunate creature up in a hole bored in an ash-tree, the twigs of which were henceforth endowed with the power of curing the “shrew-struck,” that is, those who had been unlucky enough to be touched by this “ravening beast.” The Rev. J. Wood quotes an old author named Topsel (1658), who prescribes various other remedies; *first*, the earth of a cart-road, which is fatal to them; *secondly*, “the shrew, which by falling by chance into a cart-rode or track, doth die upon the same,” is to be burned, beaten to dust, mixed with goose-grease, and used as an ointment. The preparations were for the injuries caused by the animal itself, but other *formulae* were specifics for “fellons or biles,” “impostrumes” and the “bite of a greedy and ravenous dog” (Wood, ‘*Popular Natural History*,’ vol. i. p. 435).

Mole.—The mole has bright little eyes, but it has been pronounced by tradition to be blind, and blind it will probably remain with the multitude to the end: however, there is some foundation for this belief, a really sightless mole (*Talpa caeca*) being found in Southern Europe, which was probably the species best known to the ancients. The “moudiewarp” is gradually spreading through the Scotch Highlands, and a Gaelic soothsayer has foretold that when it has overrun Argyleshire to the Mull of Cantyre it will drive all the Campbells, the great landowners of that district, from their estates. Here the wish is probably the father to the thought, for the “sons of Diarmid” are not popular with their less fortunate neighbours.

Wolverine.—This appears to be another ill-treated animal, its common and by no means flattering cognomen of “glutton” having arisen, according to Voigt, from a mistranslation. The Fins call it “fiæl-frass,” a dweller among rocks, which has been confounded with the German word “viel-frass,” a glutton. If you give a dog an evil name you may hang it, saith the proverb, and accordingly the wolverine’s habits, voracious enough in themselves, have been exaggerated to suit its name. Thus it was believed that when it had eaten to

repletion it sought a place where two trees grew near each other, and there ridded itself of its load by squaring its distended carcase between them, when it returned to its repast with renewed appetite.

Brown Bear.—In Scandinavia the bear takes the place of the lion as king of beasts, and is treated with superstitious reverence by the peasantry, who seldom allude to it by its proper name, terming it "grandfather" or "the old gentleman in the fur coat." It has, the Lapps say, the strength of ten men and the sense of twelve. In the quaint fairy tales of Norway he is treated with every outward mark of respect by the other animals, though often duped by the cunning of the fox, as in a curious story which explains "why the bear has a stumpy tail." It appears that our malicious friend Reynard persuaded poor Bruin to try and catch fish at a hole in the ice by putting in his tail, which was then a fine long one, and jerking it out when the fish bit. Naturally he was soon frozen hard and tight, and in his struggles to free himself his tail broke off short and never grew again (*Dasent, 'Norse Tales'*). I have seen a version of this legend, misapplied to the wolf, in a collection of Gaelic stories. It was devoutly believed by the Scandinavians that men assumed the forms of bears, as well as of wolves, either through their own sorcery or that of others. Concerning this superstition a grim and grisly story is quoted by Sir Walter Scott from Torfæus' 'History of Hrolfe Kraka,' to the following effect:—Biorno, son of King Hringo of Upland, was a beautiful and valiant youth, but had the misfortune to provoke the hatred of his stepmother, a "witch-lady," who revenged herself by striking him with a wolf-skin glove and changing him into a black bear. In this form he ravaged the flocks and herds, but was recognized by his ladye-love, the beautiful Bera, who fled with him to his den, where at certain hours he regained his human form. Here they dwelt, till at length he foretold to her his own death by the hand of his father, and warned her to beware of being persuaded to partake of his flesh. Next day he was hunted and slain by the king, and poor Bera captured and carried to the castle. In spite of all resistance the sorceress forced her to swallow a morsel of the bear's flesh; the consequence of which was that when she brought forth, in due time, three young, two were variously deformed, one having the limbs of an elk, the other the feet of a hound; but the third was a brave champion, who avenged his parents and slew the witch-queen. Such were the wild legends which the Scalets sung to Viking and Jarl, and to this day the Norse peasants believe that the Finns and Lapps can change themselves into

bears, and remark of one of great strength and ferocity, "That can be no Christian bear." One killed at Oföden, which had slain six men and sixty horses, was said to have borne the infallible sign of a transformed sorcerer, *viz.* a belt of bear-skin round its loins (*Dasent*). An old belief, which has become proverbial, relates that the young of the bear are born in an undeveloped state and licked into shape by their parent. Another popular and wide-spread fancy is that the bear lives in winter by sucking his paws, in explanation of which Mr. Loyd remarks that the animal is very partial to licking the balls of its feet, which at that time acquire a new cuticle.

Otter.—A strange belief regarding a spotted variety of the otter is said by Professor Bell to prevail in some parts of Scotland, namely, that it is never killed without a human being dying at the same moment: I have never myself met either with the variety or the superstition. It used to be a moot question whether the otter was beast or fish: to this Isaac Walton alludes, in a well-known passage of his 'Compleat Angler,' where he also makes his Huntsman speak as follows:—"And I can tell you that this dog-fisher, for so the Latins call him, can smell a fish in the water a hundred yards from him; Gesner says much farther; and that his stones are good against the falling sickness, and that there is a herb, Benione, which being hung in a linen cloth near a fish-pond or any haunt that he uses, doth make him to avoid the place, which proves he smells both by water and land."

EDWARD R. ALSTON.

Stockbriggs, Lesmahagow, N. B.,
August 2, 1867.

(To be continued.)

Collected Observations on the Birds of Stirlingshire.

By JOHN A. HARVIE BROWN.

Golden Eagle.—The golden eagle is now a *rara avis* in Stirlingshire, though not a great many years ago it used to circle round Ben Lomond, and place its eyrie among its cliffs. No longer ago than the close of the last century a pair of golden eagles bred in some precipitous cliffs near Campsil. Mr. R. Gray says that it still breeds in Stirlingshire (see Mr. A. G. More's paper on the "Distribution of British Birds during the Nesting Season," in the 'Ibis'). One was shot in this county on Loch Lomond, by the gamekeeper of Sir James

Colquhoun, of Rosssdue: this happened some fifty years ago, as I am informed by Mr. J. Colquhoun, of Kames Castle, when the latter was a boy.

Sea Eagle.—The sea eagle in this county is now almost as rare as the last mentioned, but, from being more numerous elsewhere, specimens are occasionally procured. One was shot by the man who killed the golden eagle, mentioned above. Mr. Colquhoun tells me that the sea eagle attacked his dog whilst retrieving a wild duck, and almost drowned it before he could offer assistance by firing at the eagle. In ‘Montagu’s British Birds,’ by Mr. Newman, is the following passage:—“Two of this species, contending in the air over the extensive lake, Loch Lomond, in the South Highlands, both at last became so firmly grappled to each other by their talons that they were precipitated into the water. The uppermost regained the power of its wings, but the other was taken alive by a highlander, who witnessed the scene, and who waited till the bird was wafted on shore by the wind.” Then, a few lines further down, Mr. Newman says, “Although an extremely bold bird, it will not venture to contend with a dog or a fox in its natural wild state.”* The above communication of Mr. J. Colquhoun seems to make this doubtful, I think. Perhaps had the dog been on dry land such would not have happened. Captain G. Spiers, of Culcreuch, informs me that he has lately seen the common eagle near his property, in the parish of Fintry.

Osprey.—In his delightful book, ‘The Moor and the Loch,’ Mr. J. Colquhoun mentions the fact of a pair of ospreys breeding on an island—Inch Galbraith—on Loch Lomond, and his son distinctly remembers that when he was young the osprey bred on the islands of the loch. A bird has been described to me under the name of the “small loch eagle” as having been killed by a man in the village of Larbert about twenty years ago: it was carrying in its beak a roach (or braese) of half a pound weight, when first seen, and, having alighted on a railway-post to eat it, was successfully stalked and shot by the man, James Finlayson, who is still alive: it measured, I was told, about five feet in extent of wings. Captain Spiers tells me that his keeper killed a specimen of the “small fish eagle” about three years ago.

Peregrine Falcon.—The peregrine is not now so common in this county as it was formerly, though there are several breeding-places still remaining around Loch Lomond and elsewhere. This fine bird used

* The observation is Colonel Montagu’s, not mine.—*E. Newman.*

to breed on the high cliffs of Ballochleam, in the parish of Garquemock; Dumyat Hill, parish of Logie; and near the town of Campsail. I know of one spot in the west of the county where it still breeds. In the 'New Statistical Account of Scotland,' it is erroneously called "the goshawk," and this erroneous name is still prevalent amongst the lower classes. On the Abbey Craig, near Stirling, the peregrine used also to breed and supply the royal household of Queen Mary with falcons, and I believe even at the present time it breeds there occasionally.

Merlin.—The merlin is pretty generally distributed over the county, but prefers the higher grounds for nesting. The local name is the "small blue hawk." One breeding-place is near the summit of Dumyat Hill, one of the Ochills, and another on the Fintry Hills, near Culcreuch, besides several others with which I am myself acquainted. I received a beautiful little male merlin once which committed suicide by flying against a plate-glass window in the mansion house of Mr. Gilbert Stirling, in this neighbourhood.

Kestrel.—The kestrel is our commonest hawk, and is called the "red hawk" in contradistinction to the sparrow hawk or "blue hawk." A favourite locality or breeding-place of the kestrel is in the ruins of Torwood Castle, in a most inaccessible spot. I have frequently found their eggs, at an elevation of not more than thirty feet from the ground, in an old magpie's nest. The kestrel breeds abundantly near Loch Lomond, both on the islands and on the shore.

Goshawk.—Captain Spiers writes, "On a crag on my land is an eyrie of the goshawk, and not far from this locality a peregrine falcon was shot a few years ago?"

Kite.—This splendid bird used to breed plentifully in Stirlingshire, more especially among the pine woods of the hills around Loch Lomond. It has long since disappeared during the breeding-season, and is only rarely seen at any time. See 'Zoologist' for March, 1867 (S. S. 632).

Common Buzzard.—The common buzzard, though not very long ago a plentiful species, is not now so common. It used to inhabit a great many different parts of the county, but gamekeepers &c. have driven it away to wilder haunts. I believe, however, that it still breeds in the county amongst the central hills of Campsail, and probably around Loch Lomond.

Marsh Harrier.—Of this bird I have no authenticated information to give, but put it down simply because it was at one time far from being a rare bird in other counties.

Hen Harrier.—A few are occasionally seen on the upper grounds, but it is not at all a common bird now in this county, that I am aware of. A favourite hunting and breeding-ground of this harrier was in former days on the moors and mosses of the Campsil Hills.

Longeared Owl.—The longeared owl is, I think, our commonest owl: it is an unjustly persecuted bird, however, and I am afraid will not be so plentiful in a few years unless something can be done to enlighten the senseless gamekeepers who persecute it.

Shorteared Owl.—This bird has been observed on some of the islands of Loch Lomond, but is not known to breed in these haunts or on the neighbouring hills (Mr. R. Gray, in his pamphlet on the 'Quadrupeds and Birds of Loch Lomond and its Vicinity.')

Barn Owl.—The white owl is still common, and I think is less persecuted now than it used to be; I know of more than one gamekeeper who does not shoot them as vermin. I have seen this bird, which is preeminently a nocturnal species, hunting and quartering a stubble-field for mice in broad daylight.

Tawny Owl.—This owl is not so frequently observed, as it almost invariably keeps to the depths and thickets of woods and forests: it is therefore a more local species than the white and longeared owls. It breeds regularly in the cleft of a rock in Torwood Forest, which is overhung by a holly-bush.

Great Gray Shrike.—The butcher bird has occurred several times, to my own knowledge: three have come under my own observation; all of these are mentioned in the 'Zoologist.' The last, when I saw it, was vigorously pulling to pieces a blue tit, placing its foot, or feet, upon it, and tearing at it with its sharp beak. Another was obtained by Dr. P. Brotherston, of Alloa, about the same time, which was procured in the west of Fife: I formerly intimated to Mr. R. Gray that this bird was killed on Dunmore estate, but have since found that I had committed some mistake concerning it. One was caught in a snare which had followed a blue tit into the trap and been itself entangled; it was caught by Sir J. Colquhoun, of Rossdhue, and another was shot by his friend, Sir George Leith, about a year ago, at the same place.

Spotted Flycatcher.—Very common: I found a nest containing five eggs of this bird in the parish of Dunipace, of a very light colour, and which have a faint zone of minute freckles of pale red round the larger end.

Dipper.—The "water craw" is common on all our streams, and

breeds regularly about the rockier parts of them. I always hear the lively little song of the dipper on or about the 1st of October, seldom before, but all through the winter in the severest weather. The sharper, monosyllabic cry of the dipper is seldom heard in winter. The most securely placed nest of this species, that I ever find, is placed under the arch of Dunipace Bridge, over the Carron River, in a hole in the masonry, and fully an arm's length into the stonework. The hole is so small that the smallest hand finds great difficulty in getting in: here it rears its young unmolested almost every year. One season a pair of starlings took possession of their hole, so I shot both of them, and the dipper resumed possession the same season, towards the end of May, and reared a second brood. Another nest was placed against a rock within a few feet of the river: to secure the eggs, which I wanted, I had to wade above my middle into a somewhat strong stream at the head of the pool, and I felt my legs being sucked into the overhanging or concave surface of the rock. The local anglers have a foolish antipathy to the dipper, and destroy every nest they can get at: it is in vain to attempt to show them that, instead of feeding on the trout ova, they feed on the trout ova's most deadly enemy, the stone fly: from habit or wilfulness they will destroy the next nest they come to.

Missel Thrush.—The local name of this bird is in common with the fieldfare, the "feltiflyer." It is also called the "storm cock." The Rev. F. O. Morris, in his work on British Birds, says that the missel thrush is very rare in the midland counties of Scotland. With us it is very common, and I have times without number taken the eggs and found the nest in Aberdeenshire, Ross-shire, and other counties. I once found a nest containing eggs within three feet of the ground: the eggs were most beautiful specimens, very thick at the large end, and tapering to a small point at the other; a regular zone of fine marbled spots and blotches of bluish purple encircled the large end, and there were scarcely any markings on the rest of the surface, the ground colour of which was clear pale blue.

Fieldfare.—The "feltiflyer" arrives with us towards the end of October, having been preceded by the redwings and most of our winter visitors: it generally leaves us again about the middle of April, though I have more than once shot them as late as the middle of May.

Song Thrush.—Local name, "mavi" or "mavis." Common; breeds plentifully. I have found the eggs of a pale blue colour,

without spots; they were placed near the surface of water. I frequently have found eggs of other birds which have this pale, washed-out appearance when the nest is placed in a bush near water; the black-bird, chaffinch, &c., are examples. May not the dampness of the locality assist in effecting this?

Redwing.—The redwing generally arrives in the beginning of October, or perhaps a little earlier, but a good deal depends on the severity of the season. I have heard a flock of these birds twittering like a flock of swallows, and so forcibly has the resemblance struck me that I have looked up in full expectation of seeing some late returning swallows westward-bound. The redwing I fancy to be more susceptible to cold than most of our winter migrants: I have repeatedly found them dead, in severe winters, beside some frozen spring, when none of the other birds appeared to suffer. Blackbirds I think are nearly, but not quite, so susceptible of cold.

Blackbird.—I took a nest of eggs of a blackbird (the bird was on the nest) much in the same situation as the above-mentioned song thrush: the eggs were of a pale blue colour, and quite unspotted; the nest was placed about two feet above a marsh, in an alder-tree which was growing out of it: see 'Zoologist' for 1866 (S. S. 146). I have several times found the nest of the blackbird on the ground in the midst of a thick rhododendron-bush; also in the side of a sloping bank behind a tuft of grass. One built on a garden-seat and sat on its eggs whilst the seat was being painted (Zool. S. S. 308).

Ring Ouzel.—Frequents most of the high grounds to the north and south of the county, and breeds also, in sparing numbers, in the Campsill Hills. Visits the gardens and orchards at the foot of the hills in July and August.

Hedge Sparrow.—Local name, "blue sparrow," from the colour of the eggs. Common, and breeds abundantly.

Redbreast.—Common; if one sits down in a dense wood, when no other bird is visible, robin will keep you company.

Redstart.—Local name, "redtail" and "firetail." Tolerably plentiful; always nests in our garden. Arrives generally about the 10th of May, but I have noticed its arrival on the 18th of April.

Stonechat.—Local name, in common with the next and the wheatear, "stonechacker." Common, but not so much so as the next.

Whinchat.—Local names as above, and "whinnie." Common.

Wheatear.—Common, but local, keeping to stony, uncultivated

tracts. Nest difficult to find. I noticed the arrival of the wheatear here on the 12th of March one season, which is very early for this locality, although some authors put this down as the usual time of their arrival. I have never either before or since seen them so early in this part of the county (Dunipace).

Grasshopper Warbler.—This bird is known to breed around Loch Lomond, where it has been procured more than once (Mr. R. Gray); and I have also heard, vaguely, that it breeds and has been found at the Bridge of Allan, on the banks of the River Allan.

Sedge Warbler.—Sometimes called the "Scottish nightingale." Breeds very plentifully. I have not noted the time of its arrival here.

Blackcap.—Local name, in common with blackheaded bunting and cole tit, the "coaly head." Not abundant, but regular. Breeds in Torwood, perhaps more abundantly than elsewhere in the county.

Whitethroat.—Local name, "chirmuffit." Arrives about the 10th of May. Plentiful.

Wood Warbler.—I have upon two occasions, in the same season, taken the eggs of the wood warbler in Torwood Forest. Mr. Thompson, of Dunmore, writes, "I have taken but one nest of the wood warbler, as I have never searched for more, requiring only one for my collection, I know, however, that they breed here regularly."

Willow Warbler.—Local names, "white wren," "smeuthe" or "smoothe." Arrives plentifully about the 20th of May, as nearly as I can observe them.

Chiffchaff.—I saw a nest and eggs in the possession of Mr. Thompson, of Dunmore, who told me that they were taken on Dunmore grounds last year (1866); he believes that they breed there regularly. Mr. Thompson has a very fair and carefully arranged local collection of the nests and eggs of the birds breeding in his district.

Goldencrested Regulus.—Local name, "golden wren." Plentiful wherever there are large fir-woods. Great additions to their numbers are made in winter, and they are then to be seen peering into the leaves after insects, in company with cole tits and creepers. They lay their beautiful little eggs early in April.

Great Tit.—Local name, "oxeye." Common.

Blue Tit.—Local name, "blue bonnet." Common.

Cole Tit.—Local name, "coaly head." Common, but local; they also, like the goldcrest, seem to have considerable additions made to their numbers in winter.

Marsh Tit.—The marsh tit is pretty rare in Scotland; I have only noticed three individuals in Stirlingshire, one of which I shot. I have eggs of the marsh tit said to have been taken at Duddingston Loch, near Edinburgh.

Longtailed Tit.—Not so common as the first three tits mentioned, but is also abundant, especially, I believe, near Loch Lomond.

Pied Wagtail.—"A water wagtail built its nest this spring in a chink of the outer wall of the saw-mill at Carron village. The large water-wheel is continually revolving during the day within four inches of the nest, in which the parent bird sat with the most perfect unconcern, the 'dizzying mill-wheel' having to all appearance no effect upon its little brain. More curious still, owing to the close proximity of the wall and the wheel, it could not fly between the two, and actually, on leaving or entering her nest, she flew between the revolving spokes of the wheel, at whatever rate the huge circle was revolving."—*Dumfries Courier*.

Gray Wagtail.—The gray wagtail is not uncommon, and stays with us at all seasons, breeding in old dykes and heaps of *débris* from the iron-mines, near water.

Ray's Wagtail.—I have seen a few examples, but it is by no means a common bird here.

Tree Pipit.—Breeds plentifully; I have many curious varieties of the eggs in my cabinet, from the common red variety to an egg of a gray stone-colour, marked with the delicate pencil-lines so often seen on the sedge-warbler's eggs; I have others like blackcap's eggs of a curious mixed red and purple colour.

Meadow Pipit.—Local name, "moss cheeper," or "cheepuck." Common. The eggs do not vary much.

Rock Pipit.—The rock pipit is not a plentiful species, as the coast is scarcely rocky enough or of any great extent; they are found, however, between Grangemouth and Kincardine in fair numbers.

Sky Lark.—Local name, "laverock." Common; assemble in winter in large flocks near the sea. This year I heard several larks singing early in February, about the middle of the day.

Wood Lark.—Local, and not common; I only know one locality in Stirlingshire, *viz.*, the edges of Torwood Forest. I once took the nest there, but have seen the birds on different occasions in other years. I could not mistake the birds, as they fluttered about the nest close to me, and I put the hen off it. I shall watch or have it watched narrowly next season, to see if the old birds return.

Snow Bunting.—Local names, “snow bird” and “snow-flake.” Local, and irregular as to its arrivals, according to the severity of the season. It frequents the mountain-tops, and also that portion of the low-lying carse-land called Gallowmuir. I have seen it also in many other localities.

Bunting.—Common in particular localities, as in the clover and hay-fields of the carse-lands. Nest difficult to find.

Blackheaded Bunting.—Local names, “coaly head” and “reed sparrow.” Common. In the ‘Zoologist’ (Zool. 8633) I mentioned having found an egg of this bird like a yellow wagtail’s, “being grayish white and minutely freckled, with a darker colour at the larger end.” The Editor asked, in a note, “was it not a cuckoo’s?” It certainly was no cuckoo’s. It was not half the size of a cuckoo’s, and was pointed a little at one end: I compared it with several, but there was no resemblance. I have many curiously marked eggs of the black-headed bunting. See ‘Zoologist’ for 1866 (S. S. 146).

Yellow Bunting.—Local names, “yite” and “yeldroch.” Abundant.

Chaffinch.—Local name, “shelfie.” Abundant. Of the eggs of this bird I have two nests of the pale variety. In both instances they were found close to and above water.

Mountain Finch.—Local name, “cock o’ the north.” I once saw a pair of bramblings on the 15th of April, and they had every appearance of having a nest near. I looked carefully for it for some time without success. The birds were constantly attending me, and I once almost caught one with my hand, they came so close. I felt quite positive that they had a nest. Curiously enough I saw a siskin the same day. This was in a young wood about six miles south of Stirling. I have never seen the brambling here in great numbers until last winter (1866-67); when immense flocks made their appearance. In 1860, when such large numbers visited the vicinity of Edinburgh, I only saw some half-dozen or so here.

House Sparrow.—In the hole in a house in Larbert village a sparrow brought forth to the light of day one young bird almost pure white, another, which I afterwards shot for my collection, with white wings, and another of the common type. Perhaps no egg varies more in sizes than those of the common sparrow. I have some as large as corn bunting’s, others as small as a meadow pipit’s.

Greenfinch.—Local name, “green lintie.” Abundant. I have taken their eggs, fresh, much later than any of the other finches.

Goldfinch.—Local name, “goldie” or “gouldie.” Now a scarce

bird, owing no doubt to the advanced cultivation and cutting of thistles. Some years ago a pair of these birds had their nest amid the topmost branches of a plane-tree on our avenue, but for the last four or five years I have seen nothing of them, or of any others in this district. Captain A. G. Spiers writes me that they have long since deserted his part of the county also, and that bullfinches are rare.

Siskin.—The siskin visits us in severe winters, and, like the lesser redpole, hangs about the alder-bushes, and never seems to be affected by severe weather. I saw one—mentioned in the notes on the brambling—on the 15th of April, 1862. I have seen the nest of the siskin in Aberdeenshire, on the banks of the Dee, where they breed every season; it was placed at the end of a branch of the black fir, some forty feet from the ground, and contained three eggs: we could not procure them by any means whatever: I saw the birds distinctly, as they were very tame.

Linnet.—Local name, “gray lintie.” Common among broom or furze.

Lesser Redpole.—Local name, “dwarf lintie.” Visits us regularly in winter, after the first sharp frost.

Mountain Linnet.—The twite is shot, Mr. Thompson informs me, in the low ground around Dunmore and on Latham Moss. It is common also in the north of the county, on the back or east slope of Ben Lomond, as well as in other localities.

Bullfinch.—Tolerably plentiful; breeds regularly in Torwood, Inarter Woods and many other localities.

Crossbill.—I am informed upon good authority that the crossbill frequented this part of the county in considerable numbers some years ago: I have never seen any here myself. A pair of crossbills, as related by Macgillivray, built their nest and reared their young in the parish of Polmont, and that agreeable and painstaking author devotes a considerable paragraph to their life-history while there. They began building in the beginning of April, and the young birds were unfortunately destroyed in the beginning of May. In December, 1838, the late Mr. Stirling, of Craigharnet, in the parish of Campsill, shot two crossbills, which were the first observed in that quarter. Captain A. G. Spiers has also noticed them in his district.

Starling.—Very plentiful now, though I believe scarcely one was to be seen twenty years ago. Every hollow tree that is not otherwise occupied has its pair of starlings. Large flocks or clouds of starlings

frequent the low ground near the coast in autumn, but gradually disappear in winter.

Raven.—The raven is still common on the rocky hills, and frequently visits the low ground in the vicinity, though seldom travelling any great distance from them. When they do so, they fly at a great height, and circle round and round like a small buzzard. I have occasionally seen them doing this as they passed high overhead.

Carrion Crow.—Local name, "corvie crow." Now a scarce bird in cultivated districts, but still plentiful in the wilder parts of the county.

Hooded Crow.—Local name, "hoodie." Now, like the last, somewhat rare, except in the hilly portions of the county. Two pairs have haunted our ground and Torwood winter and summer for the last two years, and I think must bring forth their young in the latter place, as I have never yet stumbled on their nest. In winter I have frequently seen hooded crows in small flocks along the sea-shore, picking up garbage left by the tide.

Rook.—The "crow," as the country people call it, is as plentiful here as in other wooded districts. There are large rookeries at Dunmore, Lord Abercrombie's near Bridge of Allan, our own at Dunipace, Herbertshire Castle, Campsil, and in fact all over the county. I have frequently seen the rook distinctly feeding on a dead sheep or other carrion, putting its feet on the carcase and tugging with its beak.

Jackdaw.—As plentiful and impudent as elsewhere. There is one very large colony on the borders of the county, on an island on the Lake of Menteith. I found seven nests in one hollow tree, all containing eggs.

Magpie.—I have several times taken eight eggs from the nest of the magpie. These birds frequent the wooded banks of the Carron, immediately above Carron Ironworks, in large numbers, and supply all the ground for miles around. No sooner does a keeper kill a couple of magpies on his ground, than another pair takes their place. They are certainly, in my opinion, a destructive bird to game. I have a note in the 'Zoologist' (S. S. 706) concerning a magpie with a yellow bill.

Jay.—There are now very few of this beautiful bird in this part of the county, though it is still, I believe, not uncommon around Loch Lomond, and is still present in the Dunmore woods. The last nest I knew here was some four years ago, when both old birds and young were shot or trapped by a neighbouring gamekeeper.

Creepers.—Local name, “tree-speeler.” Mr. Harting, in his able little work on the ‘Birds of Middlesex,’ says that he has never heard this bird utter any sound in winter. On the 10th of January, of this present year, I watched one or two of these little birds, and distinctly heard their cry; and also on other occasions, when no other bird was near whose cry in the least resembles theirs, I have distinctly heard them utter their feeble but startling little cry, and this when snow was on the ground: this note is not so continuous in winter as in spring certainly, but I am perfectly satisfied that they do occasionally give utterance to it.

Wren.—Plentiful. Local name, “kutty wren.” I found a wren’s nest in a cavity in a clay bank, formed by the dislodgement of a mossy stone, which in falling had left the moss hanging over it. Mrs. Wren had simply lined the cavity with moss and made a hole through the piece which hung over it. There was nothing to indicate a nest save the little round hole, and it was by the merest chance that I found it.

Cuckoo.—The cuckoo is generally heard here for the first time between the 1st and 5th of May, though often a day or two earlier. It is pretty plentiful.

Kingfisher.—This magnificent beauty is a common bird along the banks of the Carron River, frequents the burns that run from the hills into Loch Lomond, haunts the banks of the River Endrick, and is occasionally seen and occasionally breeds on the low banks of the Torwood Burn, near Dunmore. I have seen a full brood of kingfishers in company with the parent birds, following one another as they flew along the river, in a long metallic-blue line, the sun glancing on the changing green and blue of their backs, and each of the birds in turn uttering its startling shrill cry. I have also, from a distance of some ten yards, watched the kingfisher plunge into the water, catch a small minnow or stickleback, and, returning to its perch, devour it, while unobserved I looked on. In winter, when the river was frozen up, some three or four kingfishers used to frequent a marsh here which forms a dam for a mill below: when the water was dammed back it overflowed the old ice, and the minnows, getting up through cracks or dislodgments of the same, were eagerly pounced upon by the expectant birds: when this new water was again frozen the kingfishers decamped. I have frequently seen the kingfisher perched near the top of a high tree at least fifty yards from water, and have observed him to remain there for some time. I have a note on the scarcity of

the kingfisher in the 'Zoologist' for 1864 (Zool. 8954). I am glad to be able to state that they have now increased in numbers. A nest I took with seven eggs, and to which reference is made in my note, consisted simply of fish-bones in different stages of decomposition; they seemed to be mixed up indiscriminately with the eggs, and when I took my hands out of the nest I could scarcely bear the "ancient and fish-like smell" which exhaled from them and the hole together. The kingfisher seems to be more abundant here in autumn than at any other season. The female lays her first egg about the 10th of April.

Swallow.—The swallow is common here as elsewhere. They are said to remain much longer in the neighbourhood of the Carron Iron-works than elsewhere in the county, owing to the great heat from the large furnaces, but this I consider as very doubtful. The annual arrivals for the last eight years date, as nearly as I can make out, as follows:—In 1859 they arrived on the 22nd of April: in 1860 on the 24th of April; in 1861 on the 12th of April: in 1862 on the 22nd of April; in 1863 on the 18th of April; in 1864 on the 14th of April; in 1865 on the 10th of April; and in 1866 on the 16th of April. I have in my collection two eggs of the common swallow, pure white.

Martin.—The house martin is becoming in some localities, scarcer every year. A few years ago they used to build in the corners of our own windows, but not one is now seen in our immediate neighbourhood. Either the sparrows must have banished them from Dunipace, or the stone of our house is of some peculiar kind which prevents them from fastening their nests as they would like. I remember in one window in particular, which faced the north, the birds had always great difficulty in fixing their nest. The martin is, however, quite plentiful in many parts of the county.

Swift.—The "craw" or "black martin" is tolerably abundant, laying their eggs, as in other places, in the spires of village churches and other buildings: they also breed numerous in the ruins of Torwood Castle, and again in the thatch of a cottage in the village of Larbert: the inhabitant of the cottage tells me that they have frequent squabbles with the sparrows for possession of these holes, in which fights he thought that the sparrows generally got the mastery. A man in the village one day caught a "black martin" with his fishing-rod: he was walking along the river-side with his flies streaming behind him in a high wind, when a swift dashed down and successfully hooked himself: the man told me that he thought "the deil himsel' had paid him a veesit," because he knew well enough that he was quite clear of

trees or bushes at the time: he had the utmost difficulty in "landing" the swift, but at last managed to play it done, and then like a "kelt" he returned it to its own element.

Sand Martin.—The "sand swallow" is very plentiful, and I know of many large colonies in sand and gravel-banks. I have seen numbers of sand martins, soon after their general arrival, flying into and resting in holes in an old wall near here. I, however, could not discover whether or not they made their nests in it, as the wall was soon afterwards repaired with lime.

Goatsucker.—Local name, "night hawk." This is, I think, one of the few hawk-like birds that escape the gamekeeper; even the cuckoo at times suffers. This is one advance which the keepers here have made upon those who cannot discriminate between a *Falco* and a *Caprimulgus*, and who still mercilessly slay them. The nightjar breeds, to my certain knowledge, in Torwood, Daleswood, Chasefield and Dunmore. One nightjar every summer evening dashes past our front door in pursuit of the moths and other insects which are attracted by the lamp-light in the hall, sometimes so closely and quickly as to give one a considerable start.

Ring Dove.—Local name, "cushie doo." Plentiful, though not in numbers to be compared with those in East Lothian. Vast numbers of "Norwegian pigeons," as the papers call them, appear in some severe winters near Edinburgh. In Stirlingshire the numbers are also increased, but nothing in comparison with those further east. I have taken the eggs of the wild pigeon, quite fresh, as late as the 30th of September. I have often approached wild pigeons when feeding, in a high wind, unobserved, when I think they are less wary than at other times and when the wind is not so strong.

Pheasant.—The pheasant is plentiful in all preserved parts of the county, with few exceptions. In Dunmore woods many varieties are killed, such as Bohemian, ringnecked, pied and white. Peacocks were once turned out on Dunmore woods, but worked such havoc amongst the pheasants that Lord Dunmore ordered them to be all shot down again.

Capercaillie.—About four years ago, Mr. Thompson informs me, a capercaillie laid eggs in Dunmore woods, but from circumstances unknown failed in bringing them out. A capercaillie hen, which seemed to have strayed far from its accustomed haunts, was killed a good many years ago on Stennis Muir, which is simply a large common used for holding the three annual Falkirk "trysts" upon. It was the

property of the late Mr. Caddell, of Carron Park. I believe the capercaillie will soon spread to the wooded parts of our county, as they are now tolerably abundant in the woods of Tully Allan, which is only separated from Dunmore by the River Forth.

Black Grouse.—Gradually becoming scarce in some places, whilst in others it is increasing in numbers. I have shot these far from haunts congenial to their habits.

Red Grouse.—Good sport can yet be had, though the red grouse has decreased in numbers, owing to the increase of wood in what was formerly their favourite haunts.

Ptarmigan.—Constantly frequents the tops of Ben Lomond and the other higher hills, but not I believe in such numbers as formerly.

Partridge.—This bird is abundant, last season especially. I have seen this bird to perch on a tree, having been put up out of standing corn by a terrier. The following is still more remarkable, as related by my mother: one of my family remembers in a severe storm, many years ago (more than forty), that there was a covey of partridges very near the house (Dunipace House), which were fed with corn under some plane-trees: one of these trees had a low branch, which stood out horizontally from the stem, and then suddenly bending upwards grew parallel with it, and on that branch the partridges were seen to roost. The branch was some six feet from the ground.

Pallas's Sand Grouse.—On the 4th of February, 1867, I went into the house of Mr. Johnston, a bird-preserved in Stirling, and there saw a specimen of Pallas's sand grouse: this bird I bought; it was shot on the 13th of May, 1863, about a mile and a half east of Stirling, and in Stirlingshire, along with two others: this is a male bird. One of the others is now in the possession of Dr. Brotherston, of Alloa, and is also a male, and the third Mr. Johnston hopes to be able to procure for me. The one I now have would have been a good specimen, had the head and back of the neck not been somewhat severely damaged. Mr. Johnston, though not a scientific man, is perfectly trustworthy and honest, and has a good idea of stuffing birds in life-like positions. I do not think that these specimens have before been taken notice of in the 'Zoologist' or any other journal of Natural History.

Quail.—The only two specimens that I have authentic record of I was informed of by Mr. Thompson, of Dunmore: he himself shot one about sixteen years ago on Gallowmuir, and the keeper on Carnock estate killed one the same season. I have no doubt, however, that other specimens have at times been procured.

Golden Plover.—Immense flocks repair to the mud-flats at the coast in autumn, in company with lapwings: in flying with the latter, however, they always keep themselves distinct. The golden plover is not nearly so wild a bird as is supposed generally. The lapwings invariably give the first alarm and warning of danger. The golden plover breeds on all our high grounds, and even in August are not infrequent on the hills.

Sanderling.—The sanderling is occasionally seen in small flocks or single birds on the coast, but is not by any means a plentiful species. "They are seen on Loch Lomond side as late as June."—*Mr. R. Gray*.

Peewit.—A very numerous species, both in spring and autumn, but comparatively few are seen in the middle of winter. I once found a broken specimen of a lapwing's egg, and I find it thus described in my journal: "general colour rather lighter than that of a starling, greenish blue and all spotted over, though mostly at the large end, with minute spots and small blotches of black and chocolate-brown." It was not quite so pyriform as most eggs of the lapwing. It was lying on the bare ground beside a heap or "bing" of stones.

Turnstone.—Has been shot on the banks of Loch Lomond, and I have no doubt has also been observed on the coast near Grangemouth, though the coast here is not quite suited to their habits.

Oystercatcher.—Not a plentiful species on our coast, it not being suited to its habits; they are shot occasionally, however, between Grangemouth and Avonmouth, where there is a deep bed of shells. My friend Mr. J. H. Belfrage shot a couple there about two years ago.

Heron.—Local name, "craiget heron." Is always with us in more or less numbers. I once shot one in the act of swallowing a good-sized water vole, and when I picked it up the tail of the latter was protruding from its bill. There was many years ago a considerable heronry at the mansion house of Meiklewood, in the parish of Garqunock, but the 'New Statistical Account of the County' (1842) says that since the new house was built they have taken their departure. Mr. Thompson writes as follows:—"They (herons) used to breed on the large beech-trees near the church (Dunmore village), but the rooks have banished them. They never bred here in any numbers, but there would be three or four nests in a season. There was one nest last season (1866), but whenever the eggs were laid the rooks took them." Captain A. G. Spiers writes from Culcreuch, "We have plenty of herons here."

Bittern.—One was killed in a small marsh in the parish of Larbert in or about 1845, and is now in a dreadfully mangled state, in the possession of a man in the village; when it came into his hands it was supposed to be a young heron. I was told by my informant, who shot it, and who is now our gamekeeper, that the villagers, in a rough romp, had pitched the bird at one another, all taking it for a young heron. One was killed, as communicated to me by Mr. J. Colquhoun, by his father's gamekeeper many years ago on Loch Lomond side.

Curlew.—Local name, "whaup." Very plentiful, both in winter at the coast and on the moors in summer. Though I have found dozens of nests in different counties I never found more than three eggs in one nest.

Whimbrel.—I have only twice seen whimbrels far inland, when I procured two specimens, but they are abundant at the coast some seasons. Mr. Thompson frequently obtains them, and he informs me, from what he sees of them, that he thinks them much tamer than the last-named species, and that they never by any chance associate with them. Mr. Thompson also seems to think that when feeding they keep much closer together, and this I noticed to a certain extent in those I saw inland.

Redshank.—Large flocks frequent the coast in autumn, and pairs of them breed, though not numerously, all over the county, as at Loch Lomond, Loch Colter, or Coulter, above Denny, Puldock Loch, Green Loch, and many other localities.

Common Sandpiper.—Local names, "sandy laverock" and in some instances "the deacon." I cannot find out any reason for giving it the latter name. The "summer snipe," as it is also called, arrives on our streams with great punctuality. I have it recorded for five years as follows:—In 1861 it arrived, as closely as I could make out, on the 29th of April; in 1862 on the 22nd of April; in 1863 on the 23rd of April; in 1864 on the 12th of April; and in 1865 also on the 12th of April. I have frequently seen this bird diving when wounded and using both wings and feet in progressing (Zool. 8237 and 8770). This bird, in common with the dipper, is senselessly tormented by the ignorant class of the local anglers, on account of its supposed forages amongst the trout-ova. A minute's reflection would show the folly of this, but reflection is not a distinctive feature amongst colliers and miners. I have frequently found the nest and eggs a long way above the river-level, and I once took three eggs from a nest which was placed in the middle of some broom or whins, eighty feet at least above the surface of the river.

Ruff.—I believe that the ruff and reeve visit our coasts every season in autumn in small numbers. Two I have taken notice of in the 'Zoologist' (Zool. 9118 and S. S. 524). The latter was killed in my presence by Mr. J. H. Belfrage, from the same sand-bank where he formerly killed the two oystercatchers: this was in September, so of course it was minus the ruff: it was a very small specimen, and struck us both at the time as resembling a much rarer bird, *viz.* the buff-breasted sandpiper.

Woodcock.—The woodcock breeds regularly with us now, in the most suitable localities. The first nest I ever found was on the 25th of April, in Daleswood: it was placed at the root of a tree (a larch or oak, I forget which), in a bare place among heather; the young were far advanced, and notwithstanding every care I broke one in blowing; the other three I managed tolerably well considering, or rather my birdstuffer did, as I took them into Edinburgh, not having a full set of instruments at the time (Zool. S. S. 71). Ever since that year (1861) I have known them to breed either in Torwood, Daleswood, or our own grounds, as also elsewhere.

Common Snipe.—Breeds in most suitable localities among the hills, at Loch Coulter among others, where I have found the nest. I have seen upwards of sixty snipe rise from the salt-marshes at the sea in one day; and one day, three years ago, I killed six couple of snipe in a marsh belonging to the Carron Company called Lamond's Bog.

Jack Snipe.—Not plentiful, but arrives every year in the marshes, about, I think, the second week in October. They may often be found in frozen places where it would be useless to search for its "big brother."

Great Snipe.—"Last December (1866)," writes Captain A. G. Spiers, "a very rare bird was shot here (Culcreuch), the solitary snipe. I have had it set up and it looks well in its glass-case." This is indeed a rare bird, and Mr. R. Gray tells me it has seldom been obtained north of the Tweed. My friend, Mr. J. G. K. Young, of Glendowne, in Ayrshire, told me that he once put up and fired at a bird on that property which he felt almost certain was a great snipe.

Knot.—In flocks along the mud-flats in winter. Large phalanges of them fly past, offering capital "pot" shots. Our keeper succeeded, one day we were down at the coast, in knocking over six with one barrel. I have found them quite equal to golden plover on the table.

They are erroneously called "silver plover" by the people on the coast, which I believe is a name for the gray plover.

Dunlin.—Local name (in common with any other small waders when gathered into flocks), the "pickerell." Assemble in great numbers at the coast, and also breed in considerable numbers at Loch Coulter and many other localities.

Purple Sandpiper.—I have seen stragglers on the shell-bank near Grangemouth, but our coast is not suited for them. They are very abundant further down the Firth.

Landrail.—The "corn craig" is tolerably abundant. I generally hear their harsh cry between the 5th and 10th of May. I have killed several by using a call, being a wheel of hard wood with pieces cut out of its edge, and being supported between two pieces of wood, being the arms of a fork; against the edge of the wheel rests a spring of hard wood, which is screwed into the handle at one end and loose at the other: thus when the wheel is rubbed sharply against one's leg it revolves, and the spring catching in the nicks brings out the desired sound. This is much more effectual than the old plan of using two bones.

Water Rail.—I procured three specimens of this bird in a marsh near Larbert village, in the winter of 1864-55, and I am told, on good authority, that they used to breed there: of this, however, I cannot feel certain, for various reasons. None had been seen in these parts for ten years previously. This winter (1866-67) I procured two more (Zool. 9468).

Moorhen.—The waterhen is very abundant all over the county. I once observed a very curious circumstance connected with this bird: I saw a waterhen, flying at an unusual height, all of a sudden, as if shot or dizzy, tumble down on Black ice, and so completely stunned was it that I ran and picked it up before it could recover, which, however, it did in course of time. I cannot satisfactorily account for the circumstance, unless it really was dizzy from flying higher than it generally did.

Coot.—The bald coot is tolerably common, but not so plentiful as the moorhen.

Graylag Goose.—The graylag occasionally frequents Loch Lomond in severe weather, as I am informed by Sir James Colquhoun.

Bean Goose.—In winter visits Loch Lomond: it is our commonest goose on the east coast, punishing the farmers new-sown beans in early spring, through the day, and, as one of that fraternity informed me,

“paidling about i’ the mud at nicht, deil tak’ them.” The carse land west of Stirling is visited by them also in great numbers.

Bernicle Goose.—The bernicle at one time was a numerous species in our low grounds, but, doubtless owing to its not being so wild a species as the last, from different causes—amongst these, punt-guns—it is not now so numerous. Visits Loch Lomond.

Brent Goose.—Also visits Loch Lomond, and is tolerably common on the Firth of Forth. The Edinburgh markets seem to be well supplied with them.

Egyptian Goose.—The Rev. F. O. Morris, in his work on ‘British Birds’ (vol. v. p. 103), mentions the fact of three specimens of this rare bird having been killed at Campsil in November, 1832. One out of a flock of five was shot on Loch Lomond, in 1861, and exhibited at a meeting of the Natural History Society of Glasgow, by Dr. Dewar (Mr. R. Gray).

Hooper.—The wild swan visits Loch Lomond in considerable numbers some winters. Mr. Thompson tells me that he has killed one on the Forth below Dunmore. He writes as follows: “Hoopers are often seen here; one was shot last winter about the Inch, above Alloa: I shot one a great many years ago. There were some this winter (1867), but I could not get a shot.”

Bewick’s Swan.—Mr. J. Colquhoun tells me that his brother shot one out of a flock of five on Loch Lomond in the winter of 1860-61, and I believe they are frequently seen upon the loch.

Mute Swan.—Large numbers of the mute swan are bred and fed on the Carron Dams, a large sheet of water near the works; also on many gentlemen’s pieces of ornamental water, and large numbers on Loch Lomond, the property of Sir James Colquhoun. Those on Carron Dams often take short flights up the river.

Black Swan.—During the very severe winter of 1828-29 some black swans (?) appeared on Loch Lomond, and one was shot, as communicated by Mr. J. Colquhoun.

Shieldrake.—Not a common species, but is not unfrequently shot at the coast. Captain Spiers informs me that he has half-tame ones on his pond at Culcreuch, and that a year or two since he had a hybrid between a shielduck and a common one.

Shoveller.—Mr. J. Colquhoun has seen and shot the shoveller on Loch Lomond in severe winters. Mr. Samuel Singer, of Kincardine, who, having used a punt-gun there since 1851, has only on two occasions shot the shoveller on the Firth of Forth.

Gadwall.—Mr. Singer told me lately that he once killed three gadwalls on the Firth of Forth, and that, not then knowing the bird, he had sold them to Mr. Muirhead, the well-known poulterer in Edinburgh.

Wild Duck.—When watching for duck in the evening I have often been puzzled by this bird. One evening I fired at the leading bird of the first pair that came: it fell, and proved to be a male or mallard. The next pair that came afforded me a right and left, and they proved male and female: of the last pair that came that evening I killed the following bird, and it proved also a male. On many other occasions I have attempted to discover to my own satisfaction whether or not the drake always leads, and any such experiments as the above cause me to believe that the duck leads as often as the drake. So well-known a fact is it in Orkney, that the eider drake will not rise to fly before the duck, that those following after them are at no pains to hide themselves from the drake, if they be properly concealed from the duck; and I have seen cases of this in Orkney myself. Some authors confidently affirm that the drake always leads, but I feel perfectly certain that such is not the case.

Garganey.—The Rev. F. O. Morris mentions, in his work, that three specimens of this duck were shot in Stirlingshire during the last fortnight of March, 1841. Mr. Singer, of Kincardine, has only killed one specimen on the Firth of Forth since 1851.

Teal.—Common. Breeds commonly on the islands of Loch Lomond, and in several other localities throughout the county.

Widgeon.—Common, especially on the east coast.

Velvet Scoter.—Common in the Firth of Forth, and frequently comes as far up as Kincardine, where Mr. Singer has shot both them and the species.

Scoter.—As the last. Most plentiful near Bruntisland, further down the Firth.

Pochard.—One of the most abundant species on the Firth of Forth, where, near Kincardine, I once saw a flock which must have numbered at least 1500 individuals. The flocks are, I believe, principally composed of males, though the females are also quite abundant.

Scaup Duck.—Also very common in the Firth. Along with the pochard, tufted duck and goldeneye, they also frequent Loch Lomond.

Tufted Duck.—Plentiful in the Firth: more males than females.

Longtailed Duck.—Frequent in the Firth.

Goldeneye.—Common. The males seem to me to come oftener inland than the females, though at the coast there are six females for every female in a flock: this I was told by Mr. Singer, who has every opportunity of observing them, and who has used a punt-gun to more purpose than three-fourths of those who follow this as a profession. I cannot say myself that I have noticed more females in a flock than males, but I consider that Mr. Singer, having far more opportunities of watching them than I have, ought to know best; I am nevertheless doubtful about the truth of the statement.

Redbreasted Merganser.—Not uncommon on the Firth, and frequently shot inland: one, an immature male, was shot upon our river two years ago. Mr. Singer often procures them. Breeds on Loch Lomond, and I once only found the nest on Loch Coulter.

Goosander.—Common on the Firth. I received a most magnificent specimen from Mr. Singer this winter (1866-67).

All the family of divers, Sir James Colquhoun informs me, have been shot on Loch Lomond, from the redthroated diver to the dabchick.

Rednecked Grebe.—Common on the Forth and come pretty far up the river: I saw one lately (Feb. 4th, 1867), that was shot this winter considerably above Stirling, as also one of the next species near the same place.

Sclavonian Grebe.—A common bird on Loch Lomond, as also elsewhere. It has frequently been shot on the Forth, between Alloa and Stirling.

Little Grebe.—Common but local. Local name, “mither o’ the Mawkins:” this name I have never heard used in any other part of Scotland, nor can I find out the meaning of the name, or why it is applied.

Great Northern Diver.—Very rare on the Firth of Forth, and I believe very few have ever been killed in any part of it, but it is more frequent on the west coast.

Blackthroated Diver.—Commoner than the last, but by no means often got in the Firth. Mr. J. Colquhoun has seen them frequently on Loch Lomond, however, where, amongst others, a specimen of a young blackthroated diver was shot by his brother, Sir James Colquhoun, a few years ago.

Redthroated Diver.—Very common on the Firth of Forth, in immature plumage: Mr. Singer has shot several as far up as Alloa.

Guillemot.—Common on the Firth, and shot frequently in severe weather in spring above Dunmore.

Little Auk.—A little auk was killed on Loch Lomond by Sir J. Colquhoun, and Mr. Thompson, of Dunmore, shot one three years ago on the Forth.

Puffin.—Local name, "sea parrot." Mr. Thompson has shot them above Dunmore on the Forth.

Razorbill.—Occasionally killed as far up as Kincardine in winter, in severe weather.

Cormorant.—I have frequently seen this bird crossing, at a great height, from the Firth of Forth to that of Clyde: it seems a long and unusual flight for this "weird watcher of the ocean." Common at some seasons on Loch Lomond: Captain A. G. Spiers informs me that he has seen them on his pond at Fintry.

Shag.—The shag follows, as does the last species, the shoals of small fish that come up the estuary of the Forth in September.

Gannet.—Seldom seen; I have seen a stray individual or two pass high overhead, shaping their course no doubt for Ailsa Craig: one was picked up in an exhausted state in a field in the parish of Dunipace, about three miles north of Denny.

Common Tern.—Local name, "sea swallow." Abundant, often coming up our river in stormy weather. Breeds on the islands of the Firth of Forth and on Inchmoin, an island of Loch Lomond.

Arctic Tern.—Also common. Breeds on Inchmoin (?) and on the islands of the Firth of Forth.

Sandwich Tern.—"This tern has of late years bred on the island of Inchmoin: there are about a dozen pairs. Such a situation is not usual, but they will probably increase if unmolested."—*Mr. R. Gray*.

Roseate Tern.—"A few pairs breed on Inchmoin."—*Mr. R. Gray*.

Lesser Tern.—"Occurs in summer upon Inchmoin, in company with the other species breeding on the same station. It is, however, not numerous."—*Mr. R. Gray*.

Buonaparte's Gull.—An example was procured, on Loch Lomond, by Sir George Leith, as mentioned in Montagu's 'British Birds,' in 'Zoologist' (Zool. 3117), and also taken notice of in Morris's 'British Birds' (vol. vi. p. 146). I notice this bird as killed in Stirlingshire, as I believe it was killed over the surface of the loch. I consider it much better to include all birds killed on Loch Lomond as Stirlingshire, than to draw an imaginary boundary line up the centre of the loch. At the

same time I do not wish to withdraw any such from any Dumbartonshire list.

Blackheaded Gull.—One of our commonest gulls: it used to breed near a cairn of stones near Loch Coulter, but these stones being removed it has deserted the locality. Great numbers breed on Inchmoin, where, I am informed by Sir James Colquhoun, who preserves the island, not one was to be seen some few years back.

Kittiwake.—Common in the second year's plumage.

Common Gull.—Commoner in the Firth of Forth than in many other localities, but not by any means so common as others of the tribe.

Lesser Blackbacked Gull.—Not uncommon on the coast in winter, and breeds on the island of Inchmoin, Loch Lomond. There are, Mr. Gray says, some one hundred and fifty pairs, which keep themselves quite apart from their neighbours the blackheaded gulls and the terns, occupying a different portion of the island.

Herring Gull.—Perhaps the commonest of all our gulls, breeding in several localities, amongst which the island of Inchmoin.

Great Blackbacked Gull.—"Not uncommon on the coast at Kincardine: at the ferry two pairs are constantly to be seen in winter. About twelve pairs breed on Inchmoin."—Mr. R. Gray.

Richardson's Skua.—Occasionally seen assisting the other gulls in eating what the latter catch, near Kincardine. Mr. Singer has shot them in the act. Seldom, however, comes so far south.

APPENDIX.

Waxwing.—The only actual occurrence of the waxwing that I am aware of was in the winter of 1866-67. I saw it in the house of Mr. Johnston, birdstuffer, in Stirling: it was shot on the 2nd of February, 1867, about two hundred yards from the old bridge of Stirling; its head was dreadfully smashed. Captain A. G. Spiers has shot Bohemian chatterers on his property of Culcreuch, but does not, I am sorry to say, specify any dates in his letter to me.

Smew.—Sir J. Colquhoun writes that the smew has on different occasions been shot on Loch Lomond.

Greenshank.—Sir James Colquhoun writes that the greenshank has been occasionally observed on Loch Lomond, and that there are breeding-places in the vicinity, but not in Stirlingshire.

Canada Goose.—"A single specimen was shot on Loch Lomond some years ago, and is now in the College Museum, Glasgow."—*Mr. R. Gray*.

Honey Buzzard.—One specimen is mentioned by Macgillivray ('British Birds,' vol. iii., p. 260) as having been obtained near Stirling in June, 1838, and came into his hands on the 9th of that month.

JOHN A. HARVIE BROWN.

Dunipace House, Falkirk.

Errata.—In the 'Extracts from a Journal of a Nesting Tour in Sutherland,' Zool. S. S. p. 852, line 36, for "redbacked" read "redbreasted" merganser; p. 861, line 26, for "wood" read "willow" warbler (the wood warbler is unknown in Sutherland); p. 862, line 26, under ptarmigan, for "Ben More, Assynt," read "Ben-More-Assynt," and at p. 863, line 27, for "Kylesker" read "Kylesku" or "Kyleskou."—*J. A. Harvie Brown*.

Ornithological Notes from the Isle of Wight.

By Captain HADFIELD.

(Continued from Zool. S. S. 743.)

JUNE, 1867.

Manx Shearwater.—June 14. A bird of this rare species was shot near the Needles. Only one other instance of its occurrence on our coasts has, I believe, been recorded.

Swift.—17. A flock of swifts, the largest I ever saw, for it contained some hundreds, passed over the town this evening in an easterly direction: they were hawking at a considerable elevation, and their flight was circularly progressive, like that of the *Caprimulgus americanus*, when similarly engaged. As they are now nesting or incubating, it is difficult to account for these gatherings: that they are but casual visitants there can be no doubt, none breeding in this neighbourhood, that I know of, and a few pairs only in the loftier cliffs west of Shanklin; however, their flight being so wonderfully rapid, they could readily pass round the island and back to the mainland within the hour.

Wren.—22. Saw a nest recently taken; it was found in a common bramble, a few feet from the ground. Macgillivray says that when placed on the ground, the base, and often the exterior of the nest, is formed of leaves, but otherwise the outer surface is generally composed

of moss ; but this nest, though resting on nothing but the brier, and at some elevation, is externally formed of leaves, and nothing else. The opening is of fine green moss closely packed, and of a smooth surface, but there are a few fine grass-straws intermixed, encircling the entrance, which is neatly rounded off. There is no lining of feathers, though the nest has a finished look, and is perfectly even within.

Common Buzzard.—Although I have lately heard of a falcon having been seen at Steephill, I believe it to be the common buzzard, as it was observed wheeling about at a great height ; besides, on the 23rd, I obtained a momentary view of a large dark bird, which I took to be the female of the latter species, soaring over the Downs.

Cuckoo.—25. In the stomach of a cuckoo, brought to me for identification, nothing but the remains of small black beetles were found.

Quail.—Though I have occasionally heard of the occurrence of the quail in the island, I never before knew of its nesting here, but I am now told by a farmer well known to me, and whose farm at Niton I shot over last season, that his men, in mowing grass on the hill-side on the 15th, laid bare a quail's nest with numerous eggs. Seeing there would be no chance of the old birds returning to the nest, he took the eggs home and placed them under a hen, but without much expectation of their being hatched. I heard, many years since, of a bevy of quails being met with near Shanklin. The quail seems partial to islands, and is abundant in the Isle of Man, for during my short stay there I bagged sixteen brace and a half: the landrail, too, was far more numerous than in any other part of England that I know of. Bewick's account of the number of eggs laid by the quail is so widely different from that of other authors that I am induced to make a few remarks on it. One would imagine the quail to be an uncommon or rare species, for he says "it lays but six or seven eggs, whereas in France they are said to lay as many as twenty." Strange that an observer and writer like Bewick should have so greatly erred. So we are to believe that the quail on one side of the channel lays eighteen or twenty eggs, and on the other but six or seven ? If proof were needed of its laying with us double the number of eggs stated by Bewick, I have only to observe that having gone lately to Niton, to make further inquiry, I have ascertained that the eggs taken from the nest on the 15th of June were fourteen in number. But that the quail occasionally lays some eighteen or twenty eggs I have had pretty good proof ; for when residing at Pau, Basses Pyrenées, a peasant showed

me a capful of young quails just taken from the nest: though not counted they could not have been much under twenty in number, and a pretty and interesting lot they were. Why the quail should be such a scarce bird in the South of England and yet so numerous in the Isle of Man I can only account for by supposing that we are here out of the line of flight.

JULY.

Lesser Blackbacked Gull, &c.—Mr. Rogers, of Freshwater, informs me that he has noticed but one pair of the lesser blackbacked gull breeding in the Freshwater Cliffs this season, and I have reason to believe that one pair only is nesting in the Culver Cliffs, having seen but one pair on the 31st of May. Mr. Rogers states that the herring gull is breeding at Freshwater in about the usual number, as are also the guillemot, razorbill and puffin: ravens have bred there and reared their young (three in number). There being but two or three pairs of cormorants breeding in the Freshwater Cliffs this season, there is reason to fear that persecution will eventually drive this species away, as it has done the shag. Freshwater is no longer the secluded spot it was; not only are the hills fortified, but a coach runs daily between here and Freshwater.

Partridge.—Young birds had left the nest by the first week in July. Though they pair in March, I observed on the 31st of May a couple running about at mid-day, in a ploughed field, apparently feeding. Had incubation commenced, they would not have been found away from the nest; however, I believe Macgillivray to have been mistaken in saying that "the eggs are not laid until June," unless his remark refers to the partridge in Scotland; for, allowing that an egg is laid daily, it would be getting towards the end of the month before all the eggs could be deposited; therefore they could not be incubated for the young to be abroad by the first week in July.

Wood and Willow Wren.—Both species are now to be met with, having reappeared towards the latter end of the month; the former in considerable numbers.

HENRY HADFIELD.

Ventnor, Isle of Wight, August 3, 1867.

Canine Fecundity.—It may interest some of your readers to know that a young black and tan Gordon setter bitch here whelped 18 whelps, all alive and well. She was herself one of a litter of 18, and she and her mother have produced the extraordinary number of 87 whelps in six consecutive litters, the mother 58 in four and the

daughter 29 in two, making an average of $14\frac{1}{2}$ at every birth. The whelps are particularly large and healthy, with the assistance of wet-nurses.—*John Middleton, Gamekeeper to the Earl of Rosslyn.—From the 'Field.'*

Are Blue-bottle Flies distasteful to Bats?—I am induced to ask this seemingly irrelevant question through having observed that a long-eared bat, which I kept in captivity for several days, until a wound caused its death, on being fed by hand, greedily took and devoured insects of the most different kinds, especially Muscidae, but obstinately refused to eat blue-bottles, though presented at long intervals, and once after its having fasted a whole night. It would seize them, it is true, but a single bite sufficed in each instance to prove the mistake, when these flies were rejected, living and almost uninjured, whilst dozens of other Diptera were eaten in rapid succession. Had my pet lived any longer I should have tried it with Telephoridae, which are said to be a protected group amongst Coleoptera, but this must now be left for another opportunity. With a view to substantiate or invalidate recent theories, it seems desirable to ascertain fully which insects are rejected by insectivorous mammals or birds, and which species are preferred for food. To enter here further into the question of the "Kampfum's dasein," as the Germans say, is not my purpose, this subject having lately been handled in such a masterly manner in the 'Westminster Review;' but I cannot resist pointing out that the blue-bottle is one of the most gaudily-coloured members of an usually soberly attired tribe. Do birds eat blue-bottles?—*Albert Müller; Penge, S.E., August 6, 1867.*

[The genus *Musca* and *Musca vomitoria* (the blue-bottle) is a favourite food of the harvest-mouse (*Mus messorius*); from actual observation I can vouch for this, and shall feel obliged for the experience of others.—*Edward Newman.*]

Starvation of Birds.—It were easy to attribute the death of birds to the dryness of the weather, and consequent hardness of the soil; but it is wiser, I think, to state the fact, without assigning a cause. That birds have suffered and are suffering greatly from the want of sufficient food is, I think, undeniable; but how this want is caused may remain an open question. On Friday morning, the 28th of June, I was disturbed at my usual avocation of writing by a prodigious cawing of rooks, and, going out into my little cockney garden, I found a dozen or more of these birds stealing my neighbour's cherries, currants and gooseberries, and flying about in a feeble floating way that most clearly indicated a want of strength. Seven rooks were perched on a neighbour's house, either on the roof or chimneys—a position in which I had never seen a rook before, and certainly never expected to see one. On Saturday and Sunday several rooks were picked up dead, and were mere lumps of feathers and bones, thus exhibiting every symptom of being starved to death. A number of other birds have been picked up in a similar condition, but I am not able to say of what species.—*Edward Newman.*

Varieties in Birds' Eggs.—To the list of varieties of birds' eggs taken in Sutherland (Zool. S. S. 875) I must add two white grouse's eggs, which were taken after I left the county: they were in a nest along with two others of the usual colour; they closely resembled teal duck's eggs, being creamy white. On arriving at home I heard that another similar egg had been found in this county (Stirlingshire), and my friend

Mr. Alston also informs me that two have been found this season in Lanarkshire. Until this season I never heard of the variety before. I have one of the Sutherland eggs now in my cabinet, and the other is in the possession of my friend Mr. Jesse.—*John A. Harvie Brown; Dunipace House, August 3, 1867.*

Osprey near Cork.—A fine specimen of the osprey was shot last week by Mr. G. Ware, of Woodfort, on the Blackwater River above Mallow. It has been preserved by Mr. Hackett, of Patrick Street, Cork.—*From the 'Field.'*

Honey Buzzard.—A splendid female of this choice bird, shot by Captain Robson, of Maidenhead, has been brought to me for preservation.—*James Gardner; 292, Oxford Street.—Id.*

Montagu's Harrier.—I have at the present time, for preservation, a splendid female of this rare bird, shot by Colonel Sturt, M.P.; also a young male, in the second year's plumage, trapped by Lord Ashburnham.—*James Gardner.—Id.*

Snowy Owl and Honey Buzzard.—I have lately received a very fine specimen of the snowy owl, trapped by a gillie at Caithness, Scotland, which lived for some days afterwards in confinement; also a beautiful specimen of the honey buzzard, with the nest of the bird, of an extraordinary size; the bird was shot in the neighbourhood of Coventry.—*Henry Ward; 2, Vere Street, London.—Id.*

The Barn Owl.—On the gravel drive to my house, which is overgrown by trees, it is not unusual to find of a morning six or seven dead shrew mice. The house is inhabited by the common barn owl, and I have evolved a theory respecting these unfortunate shrews. My theory is that these mice have been caught by the owls and carried by them to the trees for inspection; that owls do not eat the shrew; and that on discovering the nature of their prey they simply drop it on the road beneath them. Last year the nest of the owls contained five young ones: there was a difference of age of several days between each of these owlets; while the eldest was nearly as big as his papa, and in full feather, the youngest was a little ball of down, just out of the shell, the other three filling intermediate steps. In fact, in his family relations Mr. Owl very much resembled some of my estimable friends, to whose family ladder each year has added an additional round. From this I evolve another theory—that Mrs. Owl lays her eggs at intervals of several days, but that she commences to sit so soon as she has laid her first egg. Perhaps some of your readers may demolish my theories, or may add to them interesting facts.—*John Garrett.*—[The interesting domestic economy of the barn owl was first published in 1832, in the 'Letters of Rusticus,' who, in relating his experience on the subject, tells us that a pair of owls will bring up two or three families of owlets together. "There may be three pairs of owlets all requiring the attention of the old ones at the same time—one pair three-parts grown, one pair half-grown, and one pair a quarter grown." Mr. Blyth has related a similar story in the 'Field Naturalist's Magazine,' and suggested that the eggs last laid were hatched by the warmth of the young birds of a previous clutch.—*Editor of the 'Field.'*]

Rock Thrush at Freshwater, in the Isle of Wight.—I have succeeded with great difficulty in obtaining both specimens of the rock thrush which I mentioned in my last letter (S. S. 823). These birds were exceedingly shy, and one of them was almost blown to pieces.—*Henry Rogers; Freshwater, August 17, 1867.*

Ortolan Bunting and Curlew Sandpiper in the Isle of Wight.—I have also obtained a specimen of that extremely rare bunting, the ortolan, and one of the curlew sandpiper.—*Id.*

Albino Titmouse.—On the 29th of July the keeper here observed an albino greater tit: it was accompanied by a number of the same species, and seemed to suffer from their perpetually mobbing it and following it wherever it went.—*John A. Harvie Brown.*

Hawfinch breeding at Selborne.—A fine young hawfinch was caught at Newton Valence Parsonage, a mile from hence, on the 22nd of July: it was nearly or quite full grown. I have more than once seen the hawfinch at Newton, and my friend Captain Chawner, of Newton Manor, assures me that they often breed there. I see by my notes that “On the 27th of August, 1859, I picked up the wings and some feathers of a hawfinch which had evidently been killed by a cat.” There is no doubt about their being permanent residents about this neighbourhood.—*Thomas Bell; The Wakes, Selborne, Alton, Hants, August 1, 1867.*

Sparrow wanted in New Zealand.—At a Meeting of the Committee of the Wanganui Acclimatisation Society, held on the 26th instant, it was resolved:—“That a circular be printed offering a premium of £1 per pair for any number of English house sparrows, not exceeding one hundred, delivered alive and in healthy condition here or to the Society’s agent at Wellington, within eighteen months from the present time.”—*Walter Buller, Hon. Secretary; Wanganui, October 27, 1866.*

Redwinged Starling near Liphook.—While on a visit near Liphook, in Hampshire, I saw a specimen of this rare species on a beech-tree in the shrubbery: it was not more than ten or fifteen yards from me, so I was enabled to watch him distinctly: he was of a glossy black, the shoulders of the wing being red: in his actions he strongly resembled the tits.—*W. Jesse.*

Magpie with a Yellow Beak.—Returning from a short trip abroad, I am sorry to find that my note of April 10th, which was honoured with a place in the ‘Zoologist’ (S. S. 757) has caused some misapprehension. One of your correspondents having inquired (S. S. 706) whether you had “ever seen or heard of a magpie with a yellow beak,” and you having replied, “certainly not,” I ventured to remind you and your readers that such a bird exists in California, and “corresponds remarkably” with that seen in Scotland by Mr. Harvie Brown. But I do not think it can be fairly inferred from any expression in my note that I “incline to the belief” that this last was *Pica* (not *Picus*) *Nuttalli*, as Mr. Beckwith (S. S. 826) supposes I do. He most justly states the improbability of such having been the case, though he does not mention the possibility (which should not be altogether overlooked) of the bird having been an importation. His suggestion that it had been robbing a nest is one in which I cannot acquiesce, for several reasons, but on these I need not now dwell. The matter, however, is one of perhaps no small interest. If it be true, as I suspect it is, that species occasionally vary so as to resemble other allied species, the same sort of causes which in America have produced a permanent race of magpies having yellow bills may in Europe have produced a single example distinguished by the same peculiarity, and averse as I am to the common and senseless practice of destroying every strange-looking bird observed in this country, I cannot but regret that in this instance Mr. Brown was unsuccessful in securing for examination the object of his wonder.—*Alfred Newton; Magdalene College, Cambridge, July 17, 1867.*

[I think the hypothesis that a magpie would acquire a yellow beak by devouring an egg, or any number of eggs, would be refuted by experiment; I believe the beak would not be thus coloured by yolk of egg: the question whether the bird was an

escaped prisoner, a voluntary immigrant or a mere abnormality, must remain open.—*Edward Newman.*]

A Young Cuckoo in the Nest of a Meadow Pipit.—When crossing Crownhill Down, near Plympton S. Mary, Devon, on the 9th of last July, I saw a meadow pipit fly up from the common, and soon found her nest, with a very recently hatched young cuckoo, perfectly bare of feathers, within it, and on its edge a little live pipit, quite as young, which had evidently been recently turned out of it. I replaced it in the nest, to see how the occupier of it would act; and the cuckoo soon began to use its utmost endeavours to eject the pipit. By means of the tips of its wings, which seemed to me to be peculiarly curved (but not having studied the anatomy of young birds generally, I speak thus cautiously) and its hooked tenacious claws, both of which it stuck into the materials of the nest to assist it in elevating its body, with the pipit on it, the cuckoo brought the pipit to the rim of the nest two or three times, and tried to throw it out; but this the cuckoo did not succeed in doing whilst I watched it, for perhaps more than half an hour, on account of the impediments that branches of ling and tufts of coarse grass presented around those parts of the nest to which, unfortunately for itself, it happened to bring its burden. Once the cuckoo jammed the pipit between itself and a dead stump of ling sticking up outside the nest. So much was the nest enclosed that the only place where the cuckoo was likely to have succeeded in effecting its object was where I found the young pipit at first, and where I have no doubt it had deposited it. At last I became impatient, as I was losing time I had intended to have devoted to botanizing, but knowing the fate that would befall the young pipit if left in the nest, I considered it an act of mercy to take it out and kill it before I went away, and left the young cuckoo to take its chance in a world where unfortunately right is sometimes not more respected by men than it is by cuckoos.—*T. R. Archer Briggs; 4, Portland Villas, Plymouth, August 14, 1867.*

Cuckoos at Peckham.—I have to record the capture of two cuckoos at Peckham: the first was taken alive, and was offered me while living by Mr. Murray, our talented botanist; the second was caught by a cat and brought me by Mr. Reid, of York Terrace. Both were females. The dates are July 29 and August 1. The cuckoo's note has not been heard here for weeks.—*Edward Newman.*

Singular Position of a Cuckoo's Egg.—My friend Mr. Herring, the Rector of Fordham, near Colchester, related to me the other day the following pretty little bit of Natural History. In his potting-shed was an old hamper filled with moss, and in this snug spot a robin built its nest, laid and sat upon its eggs. To his dismay, Mr. Herring one morning found three young ones on the floor of the shed alive: he carefully replaced them, but the next morning they were again on the floor, but all dead: on examining the nest carefully, he found it to contain an addled egg and a young cuckoo, who henceforth remained the sole object of Mr. and Mrs. Robin's care. The youngster was thriving last week.—*C. R. Bree; July 9.—From the 'Field.'*

[An exactly parallel case is noticed in White's 'Selborne.'—*E. Newman.*]

Cuckoo placing her Egg in the Nest by means of her Bill.—As this seems to be a point at present under discussion amongst ornithologists, I can offer evidence favourable to the supposition that the cuckoo *first* lays her egg, and then taking it up places it in the nest with her bill. Some years ago I took a cuckoo's egg from the nest of a common wagtail built under the thatch of our cow-house, but so placed that it was simply impossible for any bird the size of a cuckoo to have got upon the nest to lay the egg in it.—*W. Jesse.*

Martins "building-in" a Sparrow.—Mrs. Otway this morning told me the following anecdote:—While she was staying, a few years since, at Thane Park, in Oxfordshire, she often used to amuse herself by watching the industrious martins, just returned for the summer months, who were repairing their old nests and making new ones. A certain martin's nest, built under the eaves of the house, was taken possession of by an impudent sparrow: the nest was nearly finished, and the sparrow, having laid eggs, was sitting upon them; but the martins, not approving of such an interloper, literally built the poor sparrow into the nest with mud—that is, they closed up the entrance-holes, and the sparrow was suffocated. The above is quite true; several persons can prove it to have taken place.—*Alexander Clark-Kennedy; Teddington, Middlesex, August 7, 1867.*

Number of Eggs laid by the Swift: the Swift only perches on its Nest.—For the information of Mr. Sterland, who says in his last interesting communication [in the 'Field'] that he never found more than two eggs in the nest of the swift, I beg to say that I have in three or four instances found three eggs in a nest, but never four. I believe a surprising fact regarding this interesting bird is that it *never* alights except in its nest. The country people about here say that it cannot rise if it gets on to the ground; but this is not so, for I have put them on the ground several times, and with some difficulty they get from the ground in three or four yards.—*W. Parnell; Crewe. —From the 'Field.'*

[In the 'Dictionary of British Birds' (p. 337) and in my 'Birdsnesting' (p. 2), it is stated that the eggs of the swift are two in number; both statements are made from actual observation by competent observers: it is therefore most interesting that any naturalist should in three or four instances have found three eggs in the nest of the swift. I may add that I have repeatedly seen the swift clinging to a wall; and during the last summer I captured one with my hand in a willow-tree, where it was perched sedately enough, but it was a very young bird, and had probably taken its first flight from a church-tower close by.—*E. Newman.*]

Quail nesting in Essex.—A fortnight ago a friend kindly gave me an egg purporting to be that of a landrail taken from a nest of eleven eggs by a farmer, about five miles from here: it proved to be a quail's egg. It having been found in a clover-field, my friend had imagined it the egg of a landrail. Last season or the season before a nest was found on Sir Charles Smith's estate in the same neighbourhood.—*W. Jesse; Maisonette, Ingatestone, Essex, August 19, 1867.*

Squacco Heron at Weymouth.—A living specimen of the squacco heron (*Buphus comatus*, Gould; *Ardea comata*, Yarrell) was brought to me on Monday, the 1st of July. It is a mature bird, with the occipital plumes. It had been observed during the whole of the Sunday at different parts of the Fleet water at Wyke Regis, near this town. On Monday it was shot at and wounded only. I tried it with food, and, as all my attempts to make it feed were useless, I sent it on Tuesday to Mr. Leadbeater for preservation. The man who brought it to me states that it was not at all shy, but got very excited at the appearance of a dog, and this I afterwards found to be a fact.—*William Thompson; Weymouth. —From the 'Field.'*

Green Sandpiper near Ingatestone, Essex.—On the 18th of August, while sitting on the lawn, a specimen of the green sandpiper came and hovered over our pond, not five yards from where I was sitting, but, being frightened by my retriever, as suddenly took his departure: the whistle was so shrill as to make me start with surprise.—*W. Jesse.*

Instinct in the Swan.—A few days ago Mr. Drake, of Eton, told me the following anecdote of the swans of the Thames:—A pair of swans had built their nest on the bank of the river nearly opposite the Windsor Locks. They laid some six eggs, and had begun to sit upon them when Father Thames began to rise rapidly: the swans, fearing that the nest would be destroyed, collected many small boughs and sticks, and were seen by a perfectly reliable witness to place them upon the nest and under the eggs, so as to raise them some inches: the river soon subsided, and the swans had preserved their eggs and nest. This is a curious instance of the swan's instinct. Has such a case occurred before within the knowledge of any of the readers of the 'Zoologist?' One of these swans nearly killed a large collie dog belonging to Mr. Drake a few days ago: the swan pushed the dog under water and beat it unmercifully upon the head and back.—*Alexander Clark-Kennedy; 14, Prince's Gardens, W.*

[There are a great number of similar instances well authenticated.—*E. Newman.*]

Little Gull, Canada Goose and Spoonbill at Aldeburgh.—I had the good fortune, on Wednesday, May 22, to kill a little gull in the Thorpe Mere, in immature but very handsome plumage: it was in company with several little terns, and tolerably easy of approach: the bird (a male) had been feeding upon the slender dragonfly, so common hereabouts: the flight of the little gull almost exactly resembled that of the little tern. On Wednesday, June 5, eleven Canada geese passed over the town, going south; two were killed at Orford, but I only heard of them when too late to procure them. For some time we have had a number of the brownheaded gull or peckmires frequenting the mere at Thorpe, and of late the number has very greatly increased: I find they are (June 14) all mature old birds, rapidly losing their peculiar summer plumage. On Saturday, June 15, two spoonbills put into Thorpe Mere, but were so very wary that no one could get within many shots of them.—*Mr. Hele, in the 'Field.'*

Forktailed Petrel at Yarmouth.—A fine male specimen of this bird was shot on Breydon on the 6th of July, and is now in the hands of Mr. Carter for preservation.—*John G. Overend; Great Yarmouth.—From the 'Field.'*

Large Salmon in the Severn and Wye.—Some large salmon were taken in the Severn this season: one was caught near Cone Mill, Lydney, about a fortnight since, weighing over forty-two pounds; and on Tuesday last one was caught, at Beachley, weighing nearly fifty-two pounds: this last-named fish was exhibited at Chepstow; it measured fifty inches in length and twenty-seven inches round the thickest part: it was afterwards sent as a present to the Duke of Beaufort. Another fine fish was caught in the Wye, near Tintern, weighing above forty pounds. I believe there have not been such large fish caught in the Severn and Wye for many years past.—*Edward Sweetapple; Cone Mill, Lydney, August 10, 1867.*

Allice Shad in Mount's Bay.—An immature specimen of the allice shad has been taken in Mount's Bay on a whiffing-fly. This fish is a rare one here, and its taking a bait of the kind named is I believe rarer still.—*Thomas Cornish; Penzance, August 12, 1867.*

Rudevisch—Is this little fish ever brought to England, either bottled or as a paste? Reports credit it with possessing a flavour superior to that of the anchovy; but as the only sample I have ever seen had the misfortune to be put into a bottle which had

previously contained valerianate of potash, it will readily be imagined that my first impressions of it, as a delicacy for breakfast, were not favourable. Does it occur any where except in the Straits of Malacca?—*W. Thompson; City Club.*

Mackerel in the Boulogne Aquarium.—I believe that your readers will be interested to learn that I have not only succeeded in introducing the mackerel into the aquarium of this town, but that the specimens introduced have lived for so long a time under such unfavourable conditions as to enable me to say with certainty that they could, in a properly constructed aquarium, be preserved for the term of their natural lives. There are, in fact, now living in one of the tanks here three mackerel, one of which was put in so long ago as the 29th of June last, a second came on the 7th, and a third on the 8th of July. These fish were all caught by the hook and line, and were all more or less injured by having had their scales removed in large patches; these injuries are now fairly in course of being repaired, and a very short time will suffice to restore them all to as perfect a condition as they were in before they had the misfortune to swallow the delusive strip of skin, cut from the side of a previously-hooked relation, which led to their being placed in so novel a position. Both Dr. Günther and Dr. Couch have expressed great surprise that it should be possible to preserve alive, within the narrow limits of an aquarium, a fish “so truly pelagic” in its habits. My observations here, however, satisfy me that a necessity imposed upon the mackerel by its gregarious habit, by its voracity, and by the habits of the fish upon which it feeds, has been mistaken for a necessity imposed upon it by its organization. I am led to this conclusion by the fact that the specimens which we have here frequently go through their evolutions, for hours in succession, within a space which does not exceed in extent eight feet by six feet; and this is of daily occurrence, although the aquarium in which they are confined has a length of forty feet, with a breadth of thirty feet at one end and of sixteen at the other.—*John Smith, late Keeper of Boulogne Aquarium; Boulogne-sur-Mer.*

[Those Englishmen who have thoroughly studied the aquariums in Paris, Hamburg, Boulogne and other continental towns, cannot but wonder why we have not similar exhibitions here. Why should our Zoological Society be so behind hand in this department?—*Edward Newman.*]

NOTICES OF NEW BOOKS.

‘*A Summary of the Occurrences of the Gray Phalarope in Great Britain in 1866.*’ By J. H. GURNEY, jun. London: John Van Voorst, Paternoster Row. 1867.

THE gray phalarope was formerly so rare or so little known in Great Britain that Pennant knew of but two instances of its occurrence, and Montagu tells us he had never enjoyed the opportunity of examining it at different seasons of the year; we learn, however, that Mr. Yarrell had heard of its occurrence in so many of our English counties that he thought it undesirable to enumerate them: still the fact of its occurrence last autumn in such numbers as have been

recorded in the 'Zoologist' and the 'Field' is one which not merely claims the attention of the naturalist, but merits preservation in that connected form which a separate essay like Mr. Gurney's has given it. The remarkable immigration of the sand grouse in 1863 and of the waxwing in 1849-50 are events of a similar character to that of the phalarope in 1866, and the scientific ornithologist will scarcely fail to find in these unwonted events materials for speculation and diligent investigation. Mr. Gurney very properly admits that speculation and investigation have not yet solved the problem, although he thinks that the severe and premature gales which prevailed during September had something to do with it in the case of the phalaropes: icebergs, for instance, came further south than had ever been known before. The remark is rather suggestive than conclusive, and the real cause of this and the other ornithological invasions to which we have alluded remains, for the present at least, a secret in Nature's keeping.

In 1866 the phalaropes began to arrive in the third week in August, and the immigration continued until the second week in October, extending over a period of fifty days; at the beginning and end of this period the arrivals were least numerous, and in the middle most so. The south coast of England was most favoured by the visitors, two hundred and fifty having been procured in Sussex, eighty-six in Hampshire, and sixty-four in Devonshire; but the eastern and western counties were not visited by such numbers, and still fewer were observed in the midland and northern counties of England, and scarcely any in Wales, Scotland or Ireland. Sussex appears to have been the centre of attraction, and the number of individuals, or at any rate of observations, decreases as we advance inland from Eastbourne in every direction. It is not, however, to be assumed that Eastbourne has attractions for them beyond other places, but that the town is remarkably well off in the energy and activity of its ornithologists; still the fact remains that the main stream of immigration set towards the coasts of Hampshire and Sussex, and the inference has been drawn, but as we think too hastily, that the stream flowed in a northerly direction, and that the tired phalaropes observed so abundantly in Sussex had just been crossing the channel from the opposite coast of France. We incline to an exactly opposite conclusion, that the birds were on their southern journey, and that Sussex and Hampshire offered some natural advantages of which we are ignorant as points of embarkation for their ocean voyage.

"With regard to the plumage all were of course more or less in

change, the older individuals still retaining the bay colour of the breeding-season in places, while birds of the year exhibited a singular mixture of their parent's respective seasonal garbs, the peach-gray feathers appearing on the back and a delicate tinge of buff being visible on the throat."

This little *brochure* extends only to twenty-four pages, but it is most welcome as a contribution to ornithological science, and as the production of one bearing so familiar a name. We hope the son may hereafter emulate the father in the extent and accuracy of his researches in this branch of Natural History.

EDWARD NEWMAN.

'The Natural History of the Tineina.' Vol. X. containing *Gelechia*, Part II. By H. T. STAINTON, assisted by Professor ZELLER, J. W. DOUGLAS and Professor FREY. London: Van Voorst.

Mr. STAINTON still continues this laborious work with conscientious care and undiminished zeal: Vols. IX. and X. each contain figures and life-histories of twenty-four species of *Gelechia*. The first series of ten volumes of the '*Natural History of the Tineina*' is now complete, and two hundred and forty species have been illustrated. Thirteen years have elapsed since the prospectus of the work was issued, and nearly fifteen since the first idea of it was conceived. Mr. Stainton says, "The proposal to publish one or two volumes annually has scarcely been carried out; and many have no doubt been disappointed at the slow progress of the work; with the exception, however, of the three years 1856, 1863 and 1866 a volume has appeared each year. The mass of unpublished material collected for future volumes is very great, but the difficulty of making up the natural histories of twenty species out of one or two genera increases as the work progresses, and is one great obstacle to the rapid issue of volumes." This I can readily believe; it is a very obvious truism, but why does Mr. Stainton thus bind himself by rules of his own making, or why does he make the rules which entail so great a difficulty? He appears at last to see the futility of these restrictions, for he goes on to say, "In commencing a second series of ten volumes it may be desirable to modify the scheme in that respect, and to be content with representing on each plate only insects of the same genus, allowing a volume to contain, if convenient, a greater variety." Mr. Stainton concludes his preface by announcing a volume on the '*Tineina* of

Syria and Asia Minor,' which is already published, and which will shortly be followed by a volume on the 'Tineina of Southern Europe;' and he gives us a hint that it is proposed at no distant date to issue a volume on the 'Tineina of Scandinavia,' and another on the 'Tineina of the Alps.'

Such announcements quite overpower one, and the amount of work they imply is overwhelming: I can only express my sincere and ardent wish that Mr. Stainton's life and health may be spared to fulfil his intentions.

With regard to the volume before me it is sufficient to say there appears no falling off; it fully maintains the character of its predecessors and of that character I have already spoken in no measured terms of praise.

EDWARD NEWMAN.

'*The Tineina of Syria and Asia Minor.*' By H. T. STAINTON, F.L.S. London: Van Voorst. 1867.

A TABLE of the contents of this *brochure* is all that I can give: it treats of insects of which I possess little or no knowledge, and therefore critical remarks are out of the question: I can only say that the work appears to be compiled with Mr. Stainton's usual care and diligence.

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3. Species collected by Herr Kindermann, in 1848-1850, at Samsun, Amasia, Tokal, Simas and Diarbekir.
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Various undescribed Tineina from Western Asia.

Descriptions of various Tineina from Western Asia, previously described by Lederer, Mann, Zeller, &c.

Species collected by Herr Kindermann in two expeditions to the Altai.

Notice by Réaumur of a gall-inhabiting Lepidopterous larva from the island of Cyprus.

EDWARD NEWMAN.

Notes on the Folk-lore of Zoology. By EDWARD R. ALSTON, Esq.

(Continued from Zool. S. S. 884.)

Wild Cat.—The “Mountain Cat” was the emblem or badge of the McIntoshes or Clan Chattan, and its ferocity is testified by their motto, “Touch not the cat *but* the glove,” that is, *without* the glove. Ben Jonson introduces it as a beast of evil omen in his ‘Masque of Queens’ :—

“The owl is abroad, the bat, and the toad,
And so is the cat-a-mountain.”

The *domestic* species, which we may include under this heading, in defiance of strict nomenclature, has always been associated with the black arts. A cat was a common form for a witch to assume; still oftener it was in this shape that her “familiar imps” appeared, as is attested by the evidence at many of the infamous witch-trials which disgraced the sixteenth and seventeenth centuries. These “imps” were suckled by the witches, or were fed with their blood: thus in Middleton’s play of ‘The Witch,’ a spirit descends in the form of a cat :—

Voices above.—“There’s one come down to fetch his dues
A kiss, a coll, a sip of blood !”

According to a German superstition you may obtain money from the devil by tying a black cat in a bag, secured by ninety-nine knots, and selling it as a hare to the fiend at a church-door at midnight; but as soon as the bargain is struck, you must fly with all haste, for if you reach not the shelter of a christian roof ere the fraud be discovered, you are lost for ever. Hence, doubtless, the proverb about “letting the cat out of the bag” (*Simrock*, ‘*Handbuch der Deutschen Mythologie*,’ p. 488).

Wolf.—In the northern myths the wolf was a distinguished personage. The sun and moon were constantly pursued by two wolves, Sköll and Hati, and in the fatal days of the *Ragnarok*, the “twilight of the gods,” the fiendwolf Fenris will kill Odin himself and devour the sun, but will be slain in its turn by Vidur. Two wolves, Geri and Freki, are represented as lying at Odin’s feet in Walhalla, receiving from him his portion of the boar’s flesh, which was the food of the gods (*Simrock*): In mediæval German fable the wolf bears a very bad character, at once malicious, cowardly, and stupid; as such he plays his part in the great

Beast-epic of "Reineke Fuchs," where his greed and credulity constantly render him an easy prey to his rival Reynard. But in Scandinavian story "graa-been" (gray-legs), as he is called, bears a better name; he is grateful for kindness and is gifted with supernatural knowledge (*Dasent*, 'Norse Tales'). One source of the horror and detestation so generally felt towards this animal was doubtless the ghastly superstition of the were-wolf or loup-garou, widely spread in the middle ages, and tracing back into the mists of antiquity. Generally it was by his own wicked craft that the man assumed the form of the beast, often by means of an enchanted belt of wolfskin; but sometimes he was an innocent person condemned to this transformation by a sorcerer, who struck him with a magic glove of the same material (*Zool. S. S.* 883). Nor was this change confined to individuals; it was believed to be possessed by whole tribes and nations: thus Herodotus and other ancient writers relate that a Slavonic race, the Neurians, all changed into wolves for a few days every year. It is to this, probably, that Isaac Walton alludes when he bids us "note that Doctor Mer. Casaubon affirms, in his book of credible and incredible things, that one Gaspar Peucerus, a learned physician, tells us of a people that once a year turn wolves, partly in shape, and partly in conditions." In this country the wolf appears to be generally forgotten in popular story. The last Scotch wolf is generally said to have been slain by the famous Cameron of Lochiel in 1680, but Highland tradition relates that the species lingered in the Forest of Tarnaway much later, and the last is said to have been killed by a celebrated deer-stalker, named McQueen, of Pall-a'-chrocaïn, about the year 1743. (*Stuart*, 'Lays of the Deer Forest.')

Fox.—According to Simrock the fox was one of the beasts which were sacred to Thor, a dignity which he owed to his colour being similar to the hue of the Thunderer's beard. He has always been a favourite subject of traditionary lore; from the time of Æsop to the present day he has been the hero of a hundred stories, in which, hero-like, he is always successful. To enumerate many of these legends would be very tedious, but I may mention, as an example, the Norse explanation of the white "tag" of his brush. Reynard persuaded an old woman to engage him as her herdsman; of course he made short work of his charge, and finished off with a raid on her dairy; whereupon the dame, in her wrath, threw after him what little cream he had left, and some of it lighting on his brush he has borne a white tip ever since (*Dasent*). But by far the most important of all these tales,

or collections of tales, is the great German Beast-epic (as it has been well called) of "Reineke Fuchs," which amused knight and dame in the middle ages, and in which Reynard's unscrupulous cunning and knowledge of the world overcome all opposition, and deliver him from the most desperate and well-merited dangers. The Scotch name for the fox is "the tod" ("Islandic, *toa, tove, vulpes*," Jamieson), his nickname, answering to Reynard, being "Tod-Lowrie," the derivation of which is somewhat obscure. A curious piece of folk-lore, common in Germany and Scotland, relates that when the fox is annoyed with vermin he takes a bunch of wool or moss in his mouth, and then slowly backs into a stream till his snout only is above the surface, thus driving the fleas, &c., into his trap, which is then quickly dropped and carried away by the current. Allan Ramsay thus alludes to this story in his pastoral of 'The Gentle Shepherd':—

"As fast as fleas skip to the tate of woo',
 Whilk sleet Tod-Lowrie hauds without his mou',
 When he to droon them, and his hips to cool,
 In simmer days slides backwards in a pool."

Seals and Cetacea.—Chambers, in his 'Domestic Annals of Scotland,' quotes various old authors and journalists who record the appearance on our coasts of sea monsters, which were believed to foretell calamity to the nation, and which were probably rare species of seals and cetaceans. For example, Hector Boece informs us that in 1510 a "terrible beast of the bigness of a greyhound and footed like a gander" invaded one of the Argyleshire lochs, and, rising out of the water, "did overthrow huge oaks with his tail, and therewith killed outright three men that hunted him:" he adds that it was believed that "this beast is never seen but against some great trouble and mischief to come upon the realm of Scotland." Hollingshed, in his 'Chronicle' (1577), speaks of "sundry fishes of monstrous shape, *with cowls over their heads like unto monks*, and in the rest resembling the body of man," which were seen in the Firth of Forth before the advent of pestilence and murrain. This description reminds one of the crested seal (*Stenmatopus cristatus*) of Greenland, which, however, has not been recorded as visiting our coasts. It has been often suggested that the very human appearance of some of the marine mammalia may have been the origin of the omnipresent belief in mermaids. This theory is certainly strongly confirmed by the following facts, for which I am again indebted to Mr. Chambers's

valuable work. The writer of an 'Account of Buchan,' which is believed to have been written about 1680, refers to the occurrence of a mermaiden on the Scotch coast, in June, 1635. Fortunately an account of this mermaid has been preserved by Spalding, who describes it as follows:—"There was seen in the water of Don a monster-like beast, having the head like to one great mastiff-dog or swine, and hands, arms and paps (breasts) like to a man. The paps seemed to be white. It had hair on the head; and the hind parts, seen sometimes above the water, seemed clubbish, short-legged and short-footed, with one tail." (It escaped all the efforts made to capture it.) Here, then, we have a distinct instance of the transformation of a marine quadruped into a mermaiden; what was only a "monster-like beast" in 1635 had been developed into a supernatural creature by 1680. The description of the animal is also interesting in itself; it seems possible that it may have been some species of seal, but several features, particularly the mention of human-like breasts, seem to point to the manatee (*Manatus borealis*), which has not since been recorded as visiting our shores, although its dead body has been thrown up by the tide in two instances (*Bell, Brit. Quad.*, p. 525). So late as 1817, when a walrus was killed on one of the Hebrides, not a little superstitious feeling and even fear was evinced by the ignorant islanders (*Macgillivray, 'Naturalist's Library,' xvii.*)

Narwhal.—The tusk of the narwhal was commonly sold in the middle-ages as that of the fabulous unicorn, and was believed to have the power of neutralizing and detecting poisons: for this purpose it was commonly carved into cups; the horn of the rhinoceros was also often used.

EDWARD R. ALSTON.

Stockbriggs, Lesmahagow, N. B.,
September, 1867.

(To be continued.)

A Day among the Bird-breeders at the Point of Air.

By HENRY ECROYD SMITH, Esq.*

ACCOMPANIED by two brother-naturalists, the writer lately accomplished a long-desired examination of the angular and low-lying district situate southward of the mouth of the River Dee, and stretching in the direction of Rhyl, the object being to ascertain, if

* Reprinted from the 'Liverpool Naturalists' Journal' for August, 1866.

possible, what sea or other birds continued to breed in this little-visited locality. Authentic reports, several of which are adduced by Mr. J. F. Brockholes, in his paper "On the Birds which Nest in the District" (read before the Lit. and Phil. Soc., October 15th, 1860), testify to the former incubation upon the Cheshire sea-beach and lower shore of the Dee on this side, of the ringed dotterel, oystercatcher, common tern, shieldrake and rock dove. These species being supposed to have been almost if not wholly frightened from breeding with us by the increase of population, influx of visitors to Hoylake and the Leasowe Embankment, and last, though not least, the incessant popping of the guns of incipient riflemen—the more quiet and less accessible angle of Flintshire comprising the Point of Air seemed to offer facilities for illustration of ornithological life as existing here half a century ago. The tract in question lies considerably to the right of the railway line to Holyhead, which winds under the high ground and through the estate of Sir Piers Mostyn, whose residence, Talacre Hall, although surrounded by fine woods, is sufficiently elevated to command the whole sweep of the country shoreward, which, with the exception of an occasional reach of sand-hills, forms a dead level only varied by a few farm-houses and trees.

Having overnight secured comfortable lodgings and an informing chat with the head-keeper at the "Talacre Arms," a quiet hostelry near the Hall, early morning found us wending shoreward, furnished with a good foundationary breakfast of true farmer's fare, whilst to recruit the animal waste in the hot sunshine upon the dry and thirsty land about to be traversed, a good supply of new milk was stored in a receptacle, which, when emptied, could be useful in protecting "treasure trove." Our steps were primarily directed to the right, passing down a lane to a small wharf at the end of a straight bank or spit never wholly covered by the tide, but the wheel-marks upon its little beach showed occasional but yet sufficient use to disturb the birds, and nothing was found. A narrow but deep channel separated the extremity of this small promontory from a much more likely sand-bank lying directly opposite, or at right angles and insulated; the water was ebbing, and might by and by have been easily forded, but for this we could not spare time, or probably a few nestings of the oystercatcher, ringed dotterell or one of the terns might have been noticed. In default of this, the most likely locality, as previously described from the high ground, was a much larger bank having a level or partially depressed top, whence numerous bird-voices had already

reached us, but to gain which a long *détour* was necessary round a level marsh traversed by a deep winding gut. This difficulty at length surmounted, we quietly advanced up the broad shaley bank, every now and then disturbing an oystercatcher or ringed dotterel. A few hundred yards in advance, and upon a reach of bare muddy shore, appeared a multitude of small stakes with bent heads, but a glass being brought to bear upon these resolved them apparently into young oystercatchers, *i.e.* birds of last season, all precisely in the same attitude, and mostly immovable. It was evident that this spot, as indeed might well be expected from its position off the angle of the shore (and directly opposite Hilbre Island), is much frequented by numerous species of sea-fowl, perhaps too much visited for free incubation, as, though we were satisfied the old birds we had disturbed had eggs among the bank of shingle, the acreage was too great to be looked closely over, and we failed to find any eggs.

Somewhat disappointed with our lack of success hitherto, and seeing neither terns nor other likely banks ahead, we did not pursue the coast line much further, but after looking into several openings among the now increasing sand-hills, passed the lighthouse, and struck off from the beach in search of the breeding-places of the shieldrakes reported to us. A covey of young partridges were first stumbled upon in some thick bent grass, and then a nest of young pheasants, an odd egg of a partridge occurring at no great distance upon the bare sand. A little farther on a stock dove emerged from the mouth of a rabbit-burrow, in a manner suggesting occupation for breeding purposes, as was shortly proved through the extraction of an egg from a position some three feet down the aperture. The find was all the more welcome being unexpected, for few ornithological writers mention the breeding of this species in burrows: pollard hornbeams would seem, from these authorities, to be its favourite resort, but in the absence of such in the northern counties, burrows seem to be utilized, as in the Norfolk warrens, and upon the ranges of sand-hills common to the seaboard of sandstone districts. Bewick locates this bird's nest in hollows of decayed trees, assigning it two broods in the year, a limit probably often overstepped, especially when the first eggs are taken, at least such is the opinion of the writer in absence of ascertained fact. A second nesting was subsequently found, containing two eggs placed upon a few roots of grass: doubtless many others were to be procured with time and patient grubbing, although "early in April" is the season Mr. Hewitson published as that of incubation, whilst here we

were obtaining none but fresh eggs in the first week in June! To be sure it might in each case be the second "clutch," but on the other hand, not a single young bird was noticed by us among the many started from out of the holes and thick bent grass as we proceeded. The egg of the stock dove is smaller than that of the average of the common ring dove or wood pigeon, and by no means of so pure a white, being of a pale cream colour.

By this time our proceedings had very naturally attracted the profound attention of the warrener, who had been taking sight of us through his glass, and now approached in a somewhat querulous mood: he was, however, soon mollified, and finding we were quite scientifically bent, and not mere marauders, supplied us with all the information in his power about the habits of the stock doves and shieldrakes. The latter species (*Anas tadorna*) was likewise breeding around us, but any casual visitor would have a fine exercise of patient endurance ere he could unassistedly find a single nest, it being invariably placed considerably within the aperture,—in fact, from six to eight or even nine feet from the orifice,—and the birds never passing in or out during the day. The warrener kindly presented us with a few eggs, of which he had relieved a plundering boy on the previous evening, and which proved to be fine examples, or about the size of a double-yelked duck's or turkey's egg, and quite fresh. Being very desirous, however, of seeing or rather finding a nest, as a matter of favour the warrener allowed his sons to show us one, and its original owners having been shot by the young heir of the estate on the previous day, we had no compunctions as to securing the eggs, *if to be found*. Borrowing a "digger," or long-handled tool with a narrow blade, from the warrener, the writer set vigorously to work, having taken the primary direction of the burrow with his walking-stick, delving into the subterraneous chamber; but it was only after a third hole had been sunk into one of the already numerous ramifications of the burrow, that, after no inconsiderable groping in the loosened sand, the eggs were at length felt, eleven in number, rather hard-sitten, and quite cold. As usual at this stage of incubation some down from the breast of the hen bird was found partially enveloping them, but as no roots of grass were felt, the eggs had apparently been *laid* in the bare sand. The complement we were told, has been found to amount to fourteen, although eleven or twelve proved the most frequent number of eggs of this bird, which is said by Bewick to lay twelve to sixteen eggs on Holy Island, these requiring some thirty days' incubation.

The afternoon was fast wearing on, and having repeatedly heard of a high and partially insulated bank off the coast near Prestatyn, one likely to prove a good breeding-place, we were necessitated to hasten onward, having to regain our last night's quarters previously to catching the evening train for Liverpool at Mostyn. On the way several more stock doves were started, in all probability from nests, but no longer having time to ascertain, we diverged to the shore, thence wading to the northern extremity of an extensive bank of sand and shingle, the surface being mostly covered by the latter. Here a pair or two of oystercatchers were at once disturbed, and may have been breeding; but our attention was quickly absorbed by the shrill cries of terns; evidencing an intrusion upon one of their places of incubation. The birds proved to be of one species only, *viz.* *Sterna minuta*, or the lesser tern, a bird by no means common upon the English coasts, and much scarcer upon the western than the eastern; indeed its only recorded breeding-place upon this side of the island was one upon the coast of Cumberland, until the writer's discovery of its incubation off the shore at the north-eastern entrance of the Menai Straits last year (Zool. S. S. 100): in that case, as in the present, the bank or sand-spit is chiefly isolated from the main, running parallel to it, but only joining at one end, and rarely if ever completely submerged, even at highest tides. Mr. Brockholes certainly mentions a report which had reached him of the common tern, or *this species*, having been known to breed at Hoylake, and states the latter to be not infrequent between the Point of Air and Rhyl; but its breeding here, though probably known to some local gentry, has not hitherto been recorded, so far as the writer is aware. A second station is now verified, and possibly other favoured haunts of this rare and pretty sea-swallow may be found along the coast of Wales. Its smaller size renders it easily distinguishable from the arctic and common terns, and the eggs are not only considerably less than those of the species named, but are of a much lighter colour both of ground and markings, the latter being more dots or spots than blotches, whilst the whole egg presents to the eye so identically the shades of colouring of the surrounding sand and pebbles, that the most persevering scrutiny is requisite to detect the nestings. No real *nest* is made, but a mere scooping about six inches in diameter, where the shingle is not very large, is the sole receptacle. Sometimes it is very partially lined by a few bits of shell, as a slight protection to the eggs from excess of moisture. Of about half a dozen nestings procured by us and a couple of boys bribed to assist, three contained as many

eggs, and Messrs. Yarrell, Meyer, Doubleday and Adams assert this number to be the complement; my Carnarvonshire find, however, included several sets of four; consequently, unless two females had laid in one nest in each instance (a most unlikely supposition), the latter must be held as the actual complement of the eggs of this species, which, by the by, keeps much more apart from its fellows in the nesting than is the case with the common, Sandwich, and perhaps other terns. Two nestings of the ringed dotterel were likewise discovered upon this bank, and as both species were also found breeding near, on the Carnarvonshire station before mentioned, it may be supposed that no antagonism exists between them, but the lesser tern probably keeps at a distance from larger birds as the oystercatcher, during incubation.

To sum up shortly the result of the day's most interesting operations, the anticipated common and arctic terns were wholly unseen,—oystercatchers seen, and presumed to breed sparingly,—ringed dotterels and lesser terns incubating more numerously,—all on banks of the sea-beach, the shieldrakes and stock doves breeding freely among the sand-hills inland. In concluding, the writer may refer to a paper of his "On the Archæology and Natural History of the Mersey District for the past Three Years, 1863—65," for further and unrecorded notices of the breeding in our own neighbourhood of many of the species above mentioned; it was read before a meeting of the Historic Society of Lancashire and Cheshire on the 3rd of May last.

H. ECROYD SMITH.

NOTICES OF NEW BOOKS.

'*Pigeons, their Structure, Habits and Varieties.*' By W. B. TEGETMEIER, F.Z.S. With Coloured Illustrations of the Varieties by HARRISON WEIR. London: Routledge. 1867.

"FIRST, positively, a pigeon is a pigeon, and a pullet is a pullet; and second, negatively, a pigeon is not a pullet, and a pullet is not a pigeon." I am not inclined to dispute these somewhat dogmatic definitions, since they certainly possess the racy flavour of truthfulness, although there is perhaps not much to be said as to their depth or originality: moreover, something might be added without running the risk of being charged with obscuring and overwhelming the subject with a superfluous display of erudition. The sacred volume

supplies a first but valuable addition to this elementary definition of a pigeon, for it teaches us that the *peristera* of the Greeks, translated "turtle dove," was the parent, and *peristerion*, *peristeria*, *peristeridius* or *peristeridia*, translated "young pigeon," always the young. The "turtle dove" or "pigeon" is probably, I think it might be said certainly, the first bird clearly and definitely mentioned in history, whether sacred or profane, and one feels a pleasure that instead of puzzling over their differentiation, we may confidently accept these terms as synonymous, the only difference being in the age of the birds to which allusion is made.* How very frequently we find the somewhat tautological expletive "young" applied to lambs, kids, &c.: it seems quite unnecessary, inasmuch as we consider all lambs, all kids, to be "young," sheep and goats being the adults: and so with pigeons; all pigeons to which allusion is made in Scripture are young birds, an assertion which is far removed from all chance of disproof, because in our authorized version the word "pigeon" nowhere occurs by itself; there is not a single instance in which it is used unaccompanied by the expletive "young." Hederick has taken especial pains to explain this: *pullus columbinus*, *parvula columba*, *pipio*, are given as translations of the Greek words already cited, which have also their exact equivalent in the Hebrew *gozal*, and according to our authorized version in "young pigeons." My readers are especially referred to the context in Genesis xv. 9; Leviticus i. 14, v. 7, xii. 6 and 8, xiv. 22 and 30, xv. 29; and Numbers vi. 10: these are all the instances my illustrious ancestor, the author of our Concordance, has given of the word "pigeon" in the Old Testament, and I believe there is but one in the New (Luke ii. 24), and here also the word "young" appears as explanatory.

A second position appears equally clear, namely, that the "turtle dove" of Scripture was domesticated, and was only known in a state of domestication; the sacrifices were of domesticated animals, bulls, rams, goats, turtle doves and young pigeons: wild animals, *feræ naturâ*, are rarely mentioned as sacrifices; and hence we derive the fact that all these animals have been domesticated from the earliest historic period; indeed it will be difficult to show that our domesticated animals, or any of them, ever enjoyed a state of perfect or natural freedom, except when they have escaped from our care and set up for themselves a kind of independent existence; such, for instance,

* It may be observed that in nearly all commentaries on the Bible the inquirer is led astray by being told that the "dove" or "turtle dove" is *Columba risoria*.

as that of the horses in South America, so obviously the descendants of Spanish runaways. It will abundantly repay the little trouble such an investigation may require, to refer to the mention of all these sacrifices, beginning with that of Abram (Genesis xv. 9), "an heifer of three years old, and a she goat of three years old, and a ram of three years old, and a turtle dove and a young pigeon." These were all domestics; they were to be taken, as it were, out of the farm-yard—creatures always at hand; and they are clearly distinguished from the *wild* birds, the *fowls* which came down upon the carcasses, and which Abram drove away. Newman, and his able follower Cruden, both give their opinion, or rather their assertion, that the dove, or turtle, or turtle dove of Scripture was "a tame bird." Then we find a bit of Ornithology touching on the question in Jeremiah xlviii. 28, which beautifully connects the turtle dove of Scripture with the rock dove, *Columba livia* of our systems: "O ye that dwell in Moab, leave the cities and dwell in the rock; and be like the dove that maketh her nest in the side of the hole's mouth." I am well aware how dangerous it is to give our own scientific interpretations to Scripture Natural History, but here we have the turtle dove of Scripture unmistakably identified with *Columba livia*, and its mode of nesting accurately described.

Throughout the entire geographical area over which Scripture history extends the domestic pigeon may be literally said to swarm at the present day, and there is not a single attribute given to it in the sacred volume but is equally applicable now; a period of three thousand years has wrought no change in the disposition, the nature or the domestic economy of the dove: they are and always were loving and harmless, and are perfect patterns of conjugal fidelity: they fly as no other birds fly in the fulness of joy; not in search of food, not to escape danger, not in pursuit of the other sex, but solely for recreation, solely in the exuberance of animal spirits, solely to enjoy the exhilarating effects of the air of heaven. Not only in Scripture history, but in *all* history, in all literature, the dove or pigeon has been the admiration of the naturalist, the theme of the poet, the endeared companion of the gentle and the guileless among men.

Thus introduced by the highest authority, and descending to us from the remotest antiquity, it is impossible that the breeding of pigeons should be otherwise than an object of the greatest interest, and brought forward as it is now by Mr. Tegetmeier, who is justly regarded as a referee on all questions connected with the dovecot, we

are induced to look forward to a work of more than ordinary value and completeness. This being the case, we have turned over the pages of Mr. Tegetmeier's work with considerable disappointment at finding so large a portion borrowed from others, and so small a portion purely original. In giving the long extracts to which I refer, Mr. Tegetmeier has used the most perfect good faith; not only does he acknowledge to the uttermost, every sentence and every line extracted from other sources, but the extracts are selected with considerable judgment, and have a bearing more or less immediate on the subject under discussion. But we all know, or ought to know, the views of Huxley, Darwin, Macgillivray and others who have written expressly on these subjects, and we all should prefer an exposition of Mr. Tegetmeier's own views to those of naturalists whose contributions to Science have become trite and familiar, not to say, in some of the instances before us, obsolete. It is not, however, with any view of criticising the efforts of a fellow-labourer in the field of Natural History, but solely to bring his labours more immediately under the notice of naturalists, that this pigeon-book has been attentively read, and the following selections made from its pages: and *first* let me invite attention to certain peculiarities physiological and alimentary in the early life of a pigeon. To these peculiarities Mr. Tegetmeier thus alludes:—

“The structure and habits of the family or group of pigeons are so peculiar and so strikingly distinct from those of other birds, that they demand special attention. The pigeons were formerly classed by the majority of naturalists along with the gallinaceous birds, the true poultry, and by others with the passerine or sparrow-like birds; but more accurate observation has rendered evident the fact that they form a perfectly distinct family, distinguished from all other birds by the singular manner in which the young are nourished. Unlike the true Gallinacæ—which are hatched in a perfect state and are able to follow the parent hen within a few hours after birth—the young pigeons are born in a most immature and helpless condition, and are fed with a curdy secretion, produced in the crops of the parents, the ‘soft food’ of the pigeon fancier. This is expressly produced at the period of hatching, for the support of the callow young.”—p. 3.

“This secretion of ‘soft food’ as it is termed by pigeon fanciers, cannot be delayed, consequently if the young do not emerge from the eggs on the eighteenth day, the old birds desert the nest, refusing to sit

longer on the sterile eggs. The production of the soft food, however, may be hastened a day or two. If a pair of chipped or hatching eggs are put under a pair of birds that have been sitting for sixteen days, their presence will always stimulate the secretion of the soft food, and the young will be duly nourished. The formation of this curdy secretion—true pigeon's milk—is a very remarkable fact; it seems determined altogether by the process of sitting: it is produced equally in both parents, though the hen sits for about twenty hours, and the cock usually for only four, namely, from about ten or eleven in the morning to two or three in the afternoon.

“To receive this nourishment the young thrusts its beak into the side of the mouth of the old bird, in such a position that the soft food which is disgorged from the crop of the parent, with a sort of convulsive shudder, is received into the lower mandible or jaw which is widely expanded to receive it. It is singular that so simple an action as this should have been so greatly misrepresented as it has been by many writers. Even so good an observer as Yarrell described in his “British Birds” the old pigeons as feeding the young by placing their beaks in the mouths of the little ones, and overlooked altogether the beautiful adaptation of the broad spoon-shaped lower jaw to the habits of the animals.

“As the young advance, the soft food lessens in quantity, and the grain and seeds that constitute the nourishment of the parents become mingled with it; and when about eight or ten days old the young are fed with disgorged grains and seeds only, until such time as they are able to fly and seek their own nourishment.”—p. 10.

I confess to a craving for more information than these passages convey: my readers will observe that the “pigeon's milk” is distinctly spoken of as a “secretion,” that it is “produced in the crops of the parents,” and that as the young advance it “lessens in quantity.” Now what is this “pigeon's milk”? the term is “as old as the hills,” but the interpretation is still lacking: a secretion is distinctly understood as a fluid (or perhaps solid) evolved from that which secretes; thus the milk of sucklers is with great propriety called a “secretion” from the blood, and there are other animal secretions equally familiar, but is pigeon's milk a secretion from the blood? and if so how can it be secreted in the crop, which is the receptacle of food? As I understand secretion, it cannot be applied to macerated food. That young pigeons receive nutriment in the manner described by

Mr. Tegetmeier is, I think, fairly established, but what is that nutriment? Is it anything distinct from the food of the parent softened and prepared by a digestive process of the parent's stomach? The more thought I give to this interesting question, the more decidedly does this appear the natural and truthful solution: and here it is right—nay, it is absolutely necessary—to add that the truly great, and generally philosophic, Hunter, evinces a confusion of ideas on this interesting question exactly parallel to that exhibited by Mr. Tegetmeier in the paragraphs I have cited. After referring to the power possessed by sucklers of supplying immediately from their own bodies the nourishment proper for their offspring, Hunter goes on to say that “all birds of the dove kind are endowed with a similar power.” This he evidently considers the equivalent of milk, and he thus describes its production:—“During incubation the coats of the crop in the pigeon are gradually enlarged and thickened, like what happens to the udder of females in the class Mammalia in the term of gestation. On comparing the state of the crop, when the bird is not sitting, with its appearance during incubation, the difference is very remarkable. In the first case, it is thin and membranous; but by the time the young are about to be hatched, the whole, except what lies in the trachea, becomes thicker, and takes on a glandular appearance, having its internal surface very irregular. It is likewise evidently more vascular than in its former state, that it may convey a quantity of blood sufficient for the secretion of the substance which is to nourish the young for some days after they are hatched.”

From this passage we are certainly led to infer that the “coats of the crop” secrete from the blood the substance which is to nourish the young; but Hunter goes on to say, “Besides the dove kind, I have some reason to suppose parrots to be endowed with the same faculty, as they have the power of throwing out the contents of the crop and feeding one another. I have seen the cock parrot regularly feed the hen, by first filling his own crop and then supplying her from his beak: parrots, macaws, cockatoos, &c., may likewise be observed to have the action of throwing up the food, and often do it.” Surely this conveys no idea of secreting food from the blood: if doves and parrots are “endowed with the *same* faculty,” and if that faculty is “filling their own crops,” “throwing up the food,” and with this “thrown-up food” “feeding one another,” we have a very different phenomenon to the lactation of Mammalia.

Mr. Tegetmeier has some very sensible observations on the fitness

of animals for domestication, which, however opposed to the patriotic attempts of acclimatizing societies both at home and abroad, have the insuperable recommendation of being strictly truthful.

“The rock dove is one of those animals that is capable of being domesticated by man. The opinion that the majority of animals could be domesticated is one that is very prevalent, but has no foundation whatever in fact. For example, if a pair of eggs from the nest of a wild blue rock are placed under a domestic pigeon that has been sitting the same length of time as the birds from which the eggs were taken, the latter will produce a pair of blue rocks, that will become domesticated, being attached to their *domus*, or home.

“On the other hand, if a pair of eggs from the stock dove (*Columba ænas*), or the ring dove (*C. palumbus*), be treated in a precisely similar manner, the birds so produced will not become domesticated. There is precisely the same difference between the fowl and the pheasant. The former is so attached to its home that the return of the brood at night has given rise to the proverb that ‘Curses like chickens, always come home to roost.’ The pheasants, on the other hand, may have been tame bred for twenty generations, and yet are no nearer true domestication than their wild progenitors.”—p. 25.

The subject of variation is one on which Mr. Tegetmeier is particularly at home, and one he might have amplified with great advantage to his readers.

“It is well known that all animals, even those living in perfectly natural conditions, are subject to certain variations, such as those of colour, form, size, &c. Thus we have not unfrequent examples of white moles, blackbirds, and other animals; and changes of form and size are equally common.

“In birds as extensively distributed as the rock dove (*C. livia*) slight local or geographical variations constantly occur. Thus in India all the wild blue rocks have ash-coloured feathers over the rump, whereas the European birds have, as is well known, white rumps; and, as is well known to most fanciers, this white rump is one of the most difficult points to ‘breed out’ in any of our blue varieties; whereas the blue breeds derived from the Indian birds have, as might be expected, blue rumps.”—p. 25.

“Variations, however, of a much more striking character, not unfrequently occur in single cases of wild birds; but when they take place

in a state of nature, they are not very likely to be propagated, inasmuch as a wild bird with any variation of plumage or form, will almost of necessity mate with one of the ordinary character, the offspring again do the same, so that in a very few generations all trace of any singular variation is apt to be lost.

“In a state of domesticity, however, any singular variation would be noticed, and by careful selection of breeding stock, would be perpetuated, and even increased. In this manner all the different breeds have been produced. Some Indian fanciers in distant ages (for pigeons have been kept as domestic pets many hundreds of years in India), observing that certain pigeons were produced with extra feathers in the tails, mated them together, and again selecting those of the offspring that showed the desired characters, succeeded in eventually creating the fantail. Some short time since, a pigeon was forwarded to the writer with a second or supplementary tail consisting of three quill-feathers growing out between the shoulders. Unfortunately, the bird had been shot, otherwise there would have been but little difficulty in establishing a race of two-tailed pigeons from this singular variation. It is needless to go through all the varieties in succession, for the same principle applies to the production of each. The recurved feathers of the jacobin and other breeds, the long beak of the carrier, the length of plumage and limb in the pouter, &c., &c., all owe their origin to natural variations which have been perpetuated and intensified by the careful selection exercised by the breeders through many successive generations.”—p. 27.

We now arrive at the subject on which the author is particularly strong, the treatment of pigeons in a state of domestication, and we heartily recommend his instruction to all who keep pigeons: light, ventilation, cleanliness and security from cats, are desiderata very properly introduced to the attention of the pigeon-breeder.

“It seldom occurs that a room is specially built for pigeons; but where there is any choice of locality, it is best to select one that is open to the south, so as to get a warm aspect in winter and early spring, as that tends to encourage early breeding, and is more healthy for birds than a room exposed to the cold blasts from the north. It is not uncommon to see many pigeon rooms or lofts that are very deficient in light: this is particularly objectionable. A dark room is not as healthy for the birds, especially if they are not suffered to fly out; and it can hardly be as well cleaned as one that is well lighted. Moreover the

owner is not able to see the birds conveniently, or to examine the nests when required.

“Another point of the highest importance to the health of the birds is the establishment of a good system of ventilation. Nine-tenths of the diseases that afflict our high-bred pigeons arise from their being crowded together in dark, dirty, ill-ventilated lofts. There is no necessity for an absolute draught of wind to be allowed to rush through the loft, but full provision must be made for ventilation if healthy birds are desired.

“Cleanliness in the pigeon loft is no less essential than ventilation, particularly if many birds are kept and they are not flown. The loft should be cleared out daily. Under no circumstances should the dung be suffered to accumulate until it becomes offensive to the smell.

“Fresh gravel, sand or dry earth should be thickly strewn on the floor every day, and the dung that accumulates in the nest-boxes and around the nest pans, not suffered to collect so as to be offensive. The most convenient instrument for cleansing the shelves will be found to be a small hoe fixed on a short handle about eight or ten inches in length.

“Pigeons are often kept in lofts, or in the spaces under the tiles or slates of a house. In this case the rafters should be properly boarded over, otherwise the dung which falls upon the laths is with difficulty removed, and there is the still more serious evil that the owner's foot may occasionally slip off the rafter and find its way through the ceiling into the room below.

“It is requisite that the loft or room devoted to pigeons should be proof against the ingress of cats, rats and other vermin. Strange cats are most destructive to pigeons. When a cat has once tasted pigeon she seems to prefer it to all other food. Sometimes the access of a cat can hardly be prevented, and it may be necessary to get rid of the intruder to prevent the entire loss of the stock. A box trap baited with a pigeon's head will be found to be invariably successful in the capture; after which pussy may be shaken into a bag, which may then be placed in one pailful of water and pressed down with another.”—p. 40.

“The loft should if practicable admit of being divided, so as to enable the separation of the birds during winter to be readily accomplished. With the more common hardy breeds, this is not absolutely requisite, as in a well-sheltered room they will go on breeding successfully nine or ten months out of the twelve; but with the more artificial

and delicate high-class varieties, it is useless to attempt to rear the young during the colder months of the year, and therefore it is desirable to separate the sexes after moulting time, or in the autumn. This is most readily done by dividing the loft. If the birds are flown, the division should be so arranged that the cocks and hens can be let out separately, and they may be given their liberty on alternate days.”—p. 41.

“Another appliance very necessary to the health and comfort of the birds must not be overlooked, that is the washing pan. Pigeons are not dusting-birds, like fowls, but, on the contrary, cleanse themselves by washing: they are fond of lying down in shallow pools of water, expanding their wings, loosening the arrangement of the feathers, and then, when the plumage is well nigh saturated, they give a vigorous shake, and the water at once becomes white and milky with the scurf thrown from off from the skin of the bird.

“When kept in aviaries or in lofts it is cruel to deprive them of this pleasure so conducive to their well-doing; and therefore shallow pans of water should be provided. In our own lofts we use milk-pans for the purpose; but any broad, open vessels capable of holding two or three inches depth of water will answer equally well.”—p. 45.

In his descriptions of varieties Mr. Tegetmeier has reversed the order that a naturalist would have preferred, that of tracing the pigeon from its wild condition to its most distorted, extreme, and unnatural form and colour: he explains that his departure from the course is a concession to the pigeon-fanciers.

“In treating of the different varieties of breeds of domestic pigeons, either one of two methods might be pursued. A naturalist would regard it as most desirable to commence with the wild species, and trace the different breeds from it; taking in the first instance those that showed the least departure from their wild progenitors. Such a method of procedure would, however, not be acceptable to the fancier, who regards the natural bird with slight esteem, and values his specimens precisely in proportion as they depart from the original standard.

“As this work is on the domesticated pigeons, and is written for the use of the fancier rather than for that of the naturalist, it is more desirable to commence with the most highly valued varieties; and therefore the so-called high-class birds, the pouters, carriers and short-faced tumblers, will first engage our attention, as these breeds with some few others,

such as barbs and small African owls, offer the strongest instances of departure, at least in structural peculiarities, from the formation of the original stock.”—p. 49.

With the subject of matching colours, Mr. Tegetmeier seems to be very familiar: before one of so much experience, *pileum detraho*, I can do nothing more than reproduce his instructions, in perfect faith that they are all that can be desired.

“With regard to the matching of the particular colours, first of blue-pied: a pouter of this colour should not be matched with a black-pied, as although in many cases well-marked birds of either colour are produced, the general result is to obtain dark birds, with chequered wings and black bars, which are neither elegant nor valuable. Blues may be matched with reds, if no better match offers; and we have seen some very good-coloured birds the produce of this cross. Nothing can be better than to cross a blue cock with a large long-limbed mealy hen; the produce will in almost all cases be either blue or mealy. Blue-pied and white are not desirable to match, as very white-pied birds, or white-splashed or speckled with other colours, would most probably result.

“Black-pied may be matched with red-pied or mealy with advantage; but white should be avoided, as splashed offspring would almost certainly be produced.

“Red-pied may also be matched with yellow-pied, when good yellow or red birds will be produced; red-pied and mealy may also be matched, but with some risk to the bright red so much prized in the best-coloured birds.

“Yellow-pied may also be matched with mealy with advantage.

“White pouters should have a white beak, a dark eye and a plumage of immaculate purity, in addition to all the other properties of the breed. The fear of the hereditary transmission of a few dark feathers has made many fanciers dread any intermixture of other blood with their white strain; but we can speak from long experience in breeding this variety, and can state that some of the best whites we ever reared were obtained from a cock with a dark splashed tail and a mealy hen, and that the progeny of these birds, when crossed with other whites, bred birds free from stain.

“White, in the language of the fanciers is a “strong” colour, that is to say it is one that reproduces itself with great force, and really

overpowers other colours existing in the bird to which it is matched.”—p. 63.

We have a chapter especially devoted to pouters, and are taught with evident earnestness how these extraordinary birds ought to be managed: how often have I gazed on these strutting deformities, and amused myself with speculating whether it was more probable they would rise up like balloons or topple over on their exaggerated stomachs!

“We now have to consider the arrangements most desirable for the accommodation of a stud of pouters. The size and peculiar habits of these birds render necessary a very considerable modification of the arrangements that are usually made for the other varieties of domestic pigeons. Their height necessitates pens of much greater altitude, their length of feather requires a large increase of size in their nesting-places and cages, and the desirability of getting them into show renders it almost imperative for the pouter fancier to have such an arrangement of his loft as will admit of his penning the whole of his birds separately during the winter months, that is from immediately after the moulting season until they are matched up anew in the spring. First-class pouters cannot be advantageously kept, either in dovecotes, pigeon-houses or lofts, such as may be devoted without any inconvenience to many of the other varieties; and except in country districts where they are secure from molestation, they cannot be safely flown at large, as they are so tame that they may be frequently taken up in the hand, and when they are strutting about with inflated crops they offer themselves as easy victims to predatory cats. Hence, in towns, pouters are always kept in rooms or enclosed aviaries, and these are fitted up with pens for the nesting and confinement of the birds.”—p. 64.

It seems that a Mr. Samuel Bult rules or has ruled supreme in the management of pouters, and that Mr. Tegetmeier has enjoyed the advantage of visiting his establishment, an advantage which he fully appreciates and gracefully acknowledges.

“Those fanciers who like ourselves have had the privilege of seeing this celebrated stud at home, cannot fail to have been struck with the admirable manner in which the birds were cared for. A visitor was never allowed to see them before the houses had been thoroughly cleaned out for the day, the floors freshly swept and gravelled and the pens strewed with sawdust. If the visit was early in the day, a glass

of wine and a biscuit served to beguile the time until 'William' announced the fact that the birds were ready for inspection: on stepping out on to the lawn, at the back of the house, the visitor saw a walled garden of moderate size; at the opposite sides of the lawn were two summer-houses, which were devoted to the pouters. In the centre of the lawn was the stump of a low tree, the branches of which had been sawn off, leaving the truncated ends, each of which supported a small platform on which the birds could fly. On the lawn itself were the large shallow vessels in which they bathe. The houses contained the pens, each one of which was about three feet long by eighteen inches in height. The fronts of the pens were made of perpendicular wires. The door formed the middle third, the wires at the two ends being fixtures. At the two extremities of the pens were placed large flat flower-pot saucers, serving as nest pans, and often a pair of young birds were to be seen at one end, whilst one of the young birds was sitting on a pair of eggs at the other. Each pen was furnished with two small pans, one for food, the other for water: these were never empty."—p. 66.

"Those who like ourselves have had the pleasure of witnessing the scene from Mr. Bult's house, will acknowledge that his arrangements were the very perfection of pigeon-keeping. The extreme cleanliness of the houses and pens, the beauty of the birds, now prancing proudly on the lawn, and then, as it were in the very exuberance of their animal spirits, starting off on a short flight, with loud-flapping wings and inflated crops, and the pleasing variety occasioned by the different colours of the birds, combined to render the picture most attractive."—p. 67.

I conclude my quotations with a few instructions on the method of feeding young pigeons by hand, the minuteness of which will convince every one of the attention which Mr. Tegetmeier has paid to every branch of the subject.

"The method of feeding by hand usually adopted is to cram the bird with soaked beans or peas. We prefer the former, as being larger and not requiring so many to fill the crop. The bird to be fed should be lifted from the nest, or the nest-pan may be taken on the knees as the feeder sits on a low chair; when placing the left hand over the bird, he holds the head between the finger and thumb, and taking up the beans (which should be conveniently placed) with the right hand, he opens the beak and slips them rapidly, one after another,

down the throat of the young; taking care that they pass on into the crop and do not collect in the gullet, where by pressing the windpipe they might stop the breathing.

“The object of soaking the beans is twofold. By it they are rendered larger, and so are more easily handled, and sufficient water is given at the same time as the food; this is a great advantage, for at the early age at which some pouters require feeding, it is difficult to induce them to drink.”—p. 67.

It will be impossible for anyone to read these various extracts without perceiving that Mr. Tegetmeier is thoroughly master of the practical portion of his most interesting subject. If he has failed in propounding a perfectly unobjectionable theory on the nature of pigeon's milk, and in making the subject clear to all comprehensions, he is at least on an equality with the greatest of all our physiologists, John Hunter, so that nothing can be fairly said in the way of adverse criticism. Again, should it be objected to his explanation of the phenomenon of variation, that it is unsatisfactory and incomplete, I can only say that this is the case with *all* explanations hitherto published: we have as yet neither a solution of causes nor a classification of facts; and the time has yet to come when these great desiderata shall be supplied. Opposed as I always have been to the now prevalent doctrines of transmutation of species, I willingly accept the pigeon as a “test object.” Mr. Darwin has done much the same; he has dwelt on the variations in pigeons with a fondness and an exhaustiveness that leave nothing to be desired; yet his splendid hypothesis has received no confirmation from the pigeon: within the historic period at least, man with all his skill, and with all his energy, has made no approach to the evolution of a species; no one has contended and no one will contend that the dovecot pigeon is an evolution from the stock dove or the stock dove from the dovecot pigeon, and no one has contended or ever will contend that a new species is in course of evolution, and no one has ever doubted that the dovecot pigeon is the rock pigeon; the two are identical. It is a mere evasion of the question to say that there has not been sufficient time. Pour water into a butt that has no bottom: the first hour of the operation carries with it the conviction that your labour is futile: if an hour produces no effect, you have no right to expect it from ages. Two parallel lines never meet. The pigeon under such management as Mr. Tegetmeier's is, I repeat, a capital “test object,” and if we fail to

evolve a species it is because the hypothesis, like the water-butt, will not hold water. No one, within my knowledge, has ever expressed a doubt that our "turbits" and "Jacobins," our "nuns" and our "swallows" would revert to "blue rocks," as soon as man ceased to tamper with their natural instincts.

With regard to the illustrations, my friend Weir has displayed his usual skill and knowledge of form and habit: his figures are better than photographs, because his educated pencil has photographed each in the best possible attitude, and under the best possible circumstances; but why represent each bird under the adverse conditions of a London fog, a "November particular." I have never seen a London fog represented with such fidelity; its aspect is absolutely fearful; and a friend looking over my shoulder at the lurid glare exclaimed, "What a fog! you might cut it with a knife!"

EDWARD NEWMAN.

Ornithological Notes from North Lincolnshire.

By JOHN CORDEAUX, Esq.

(Continued from S. S. 811).

JULY AND AUGUST.

Corn Crake.—These birds are now quite of common occurrence in this parish and neighbourhood during the spring and summer: I have remarked a gradual increase for the last four years. Previous to this period we seldom if ever either met with them or heard them. I have occasionally put them up, when shooting in September, either in turnips or most frequently in standing corn. On several occasions during the spring and summer of 1865 and 1866 I recognized the harsh monotonous call of the corn crake in some of the low meadows. This year, judging from the incessant "crek, crek" kept up during the whole of the short summer nights, not only in these meadow-lands, but in every part of the parish, we have had very considerable numbers located here.

Many other birds, as rooks, starlings, wood pigeons, and, above all others, sparrows, have of late years largely increased in numbers. This is apparent, even to the most careless observer. With regard to the rooks and starlings, I often wonder how they manage to pick up a living, so immense are the flocks which now visit our mainland during the later summer and autumn. Every spring fresh trees, often

not very appropriate ones as regards safety, are taken up by small colonies of rooks, the spare population from the large overstocked rookeries.

Starling.—There is no bird of greater service to the farmer than the starling. One starling will in a single day devour an almost incredible quantity of noxious insects and grubs inimical to the labours of the agriculturist: I never open them without finding insects in their stomachs. Great complaints have this season been made of the injury done to the pea-crop by Aphides: in this neighbourhood I know of only one exception, a thirteen-acre field, containing a very fine and promising crop. This field was no sooner attacked by the fly than it became the resort of many thousands of starlings, and here they remained from early morning till evening, day by day, for several weeks, industriously picking off and devouring the plague of green flies which threatened to destroy the crop, a result at one time apparently inevitable. The usual cautious habits of the bird were for a time laid aside: when disturbed they arose with evident reluctance, alighting again almost directly. It would have been no easy task to have driven them from the field. The combined action of all these small birds did at last effect what no power or exertion of man could possibly have accomplished, namely, keeping under, and in great part destroying, these myriads of insects, which otherwise, in the short space of a few days, would have prevented all progress to maturity in the plants. I entirely attribute the preservation of this crop of peas to my little friends the starlings.

Sparrow.—I wish I could give the sparrow as good a character as the starling. Independent, however, of all we read about him, and the service he renders the farmer in destroying grubs and insects, and the solicitude expressed by the Acclimatisation Societies for his introduction into the Colonies, and the high price they are willing to pay for his importation, I still think that here at home in England he is not quite so honest as his admirers fancy; that, in fact, he may not unjustly be designated the enemy of mankind. My opinion of him is that he will never touch any other food when he can procure grain. The annual damage done by sparrows to the ripening corn crop throughout England must be enormous. A learned Frenchman, Rougier de la Bergerie, estimates that the sparrows of France consume every year ten million bushels of wheat. It is not alone what they eat, but the quantity knocked out from the ripening heads, till for acres together the crop has the appearance of having been thrashed with a

flail. No amount of shooting, shouting or rattling is of the slightest avail to ward off the pertinacious attacks of the enemy. If driven from one spot they go to some other part of the field, and at last scarcely notice any attempts to drive them away. It has often been urged in defence of the sparrow that although, to a certain extent, they commit depredations on our corn crop, they make ample compensation by destroying those insects and their larvæ which otherwise would overrun our fields. In this district, however, where the farms and fields are extensive, and the homesteads isolated, we never see sparrows in the fields excepting at that season when the grain is there. When the corn is carried into the yards the sparrows follow, and hang about the premises till the succeeding crop calls them abroad again. During the dry season of 1864 my garden was infested with caterpillars and everything was more or less destroyed; the gooseberry and currant bushes stripped of their leaves. The plantations and shrubberies round this garden are the chosen haunts of hundreds of sparrows; and here, as they are never disturbed, they pass an idle, happy life. In return for this forbearance on my part I fondly trusted they would speedily rid me of my enemies, the caterpillars; but no,—

“O wretched set of sparrows, one and all,—”

although they perched and chattered by hundreds in the trees almost overhanging my currant-bushes, they never to my knowledge, and I was constantly on the look out, attempted either to clear fruit-trees or garden from the destroyers. Much has of late years been both written and spoken in praise of the useful and honest sparrow. Like many another popular cry it may be overdone. He has his good points, and he has his faults, and not small ones either.

Brownheaded Gull.—During fine weather if these gulls are noisy, assemble in large flocks, fly round in circles, rising by a spiral flight, column-like, often to an immense height, it is an unfailing indication of rain within four-and-twenty hours. To-day (September 9th) I counted more than fifty of these gulls hawking, after the manner of swallows, for the crane-fly; myriads of these awkward and ungainly insects were drifting, impelled by a steady S.W. wind, over the marshes.

Ringed Dotterel.—Observed a small flock of six on some fallow land on the 27th of July, the pioneers of the autumn flocks. Hundreds of these little fellows made their appearance in the first week in August. These flocks contained an unusual number of dunlins.

Snipe.—First seen on the 22nd of July. I have now for some years put up snipe, the first arrivals of the season, near the same place, the side of a reed-covered drain. It is curious we never find them in this likely-looking drain during any other month in the year.

Golden Plover.—August 3rd. Put up a single golden plover, black-breasted, in the marsh to-day.

Linnet.—August 3rd. Have already congregated in small flocks.

Fern Owl.—The fern owl is a rare bird in North Lincolnshire; I never heard it. The rector of a neighbouring parish informs me that he heard one calling, at eleven o'clock at night, on the 19th of July, in some wood lands near his house. One of these birds was shot on our "fitties" by a Grimsby "gunner" during the last week in November, 1864.

Sheldrake.—Have on several occasions observed a pair or two of this beautiful species flying about the flats during the summer months. Some years since several pairs bred in the Humber district. I have only heard of one pair doing so this season, in private grounds, to which circumstance they doubtless owe their safety.

Swift.—Last seen on the 6th of September.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
September 10, 1867.

Occurrence of Sylvia aquatica for the Second Time, so far as is known, in England. By J. E. HARTING, Esq., F.L.S.

THE occurrence of *Sylvia aquatica* in England was for the first time made known by Professor Newton, who, at a Meeting of the Zoological Society in May, 1866, exhibited a specimen from the collection of Mr. Borrer, of Cowfold, Sussex, which had been obtained near Brighton in October, 1853. I was unfortunately prevented from attending this Meeting, but in November last, while on a visit to Mr. Borrer, I had ample opportunity of examining this specimen.

I was at once struck with its similarity to a bird in my own collection, which I had received from the neighbourhood of Loughborough two years previously, and which I had put aside to be named, not being acquainted with the species.

On my return home I carefully re-examined this specimen and compared it with the plate in Dr. Bree's 'Birds of Europe,' and felt

little doubt but that it was *S. aquatica*. To be sure, however, that I was not mistaken, I sent the bird for examination to the Rev. H. B. Tristram, who is so well acquainted with the Avifauna of Europe.

To my note which accompanied it, his reply was as follows:—“There is no doubt about your *Salicaria aquatica*. It is not in full plumage, and therefore may be a bird of the year. The mature bird in breeding plumage has not the spots on the breast and flanks. There is no difference between the sexes.”

The specific characters of this bird, as pointed out by Dr. Bree, are as follows:—“A large band of yellowish white or yellow over the eyes; on the head two large longitudinal black bands separated by a reddish yellow band; the under tail-coverts and the rump marked with oblong blackish spots; tarsi flesh-colour.”

To the history of this species which may be found in the work just referred to (vol. ii., p. 80) may be added the following interesting note from Mr. Tristram:—“The nest of *S. aquatica*, which I have several times taken in Africa, is rather like that of *S. luscinioides*, of one material throughout, not suspended like the reed warbler's, but placed in the fork or leaf-joint of a big reed or cane in the centre of a swamp. The nest is small, lined with horse-hair, and interlaced with the stem.”

It only remains for me to add that the subject of this memoir was obtained in the neighbourhood of Loughborough, Leicestershire, during the summer of 1864, and was forwarded to me by a friend under the impression that it was a grasshopper warbler.

When we consider that *S. aquatica* is known to breed on the opposite shores of Holland, and is found in the marshes about Lille and Dieppe, we are only surprised that it is not a more frequent visitor to Great Britain than it appears to be. On the other hand, its general resemblance in size and colour to other well-known species, when seen at a little distance, would naturally cause it to be overlooked.

J. E. HARTING.

Kingsbury, Middlesex.
August, 1867.

Nesting of the Peregrine in Yorkshire.—It may interest some Yorkshire ornithologists to know that the peregrine has nested this year near Flamborough. Some egg-climbers that I fell in with, during a walking tour on the east coast in June, informed me that two nests had been found, one of which contained two young ones. When I spoke doubtfully, and suggested that it might be some other species, one of the men described it with some emphasis as “the hunting hawk with yellow legs.” One or two

silver-eyed guillemots had been shot just previous to my visit. Jackdaws eat the guillemots' eggs: for this crime the egg-gatherers pull the jackdaw's nests, and kill the old ones if they can.—*George Roberts; Lofthouse, near Wakefield.*

Hobby in Kent.—On the 31st of August I revisited the wood where I saw the three hobbies together last year, and again saw two if not three there, certainly two together. If as I infer they breed there, the young birds must disperse themselves over the country, for we never see more than two or three. I was much pleased, on the 6th of September, to meet with one close to Cobham, for the above-mentioned wood is in quite a different district and on a different soil, quite isolated from other woods. This hobby came over my head as I was returning from shooting. In the excitement of the moment I fired at him, but fortunately, owing to the height he was at, did not hurt him. On returning to the spot next day I found him as often as I liked, for he is by no means a timid hawk, and spends most of his time in the air looking for prey, flying with outspread wings in graceful swoops. His swift-like wings and short tail distinguish him from other small hawks. I saw him hanging almost motionless in the face of the wind, rather like a kestrel, scarcely moving the wings. When the sun shines on him he appears of a bright bronze colour. The head keeper had previously seen him at the same place, a wooded eminence overlooking some rough long grass.—*Clifton; Cobham Hall, Gravesend, September 7, 1867.*

Hobby near Norwich.—On the 26th of June last a beautiful mature female hobby was killed at Shotterham, about six miles from Norwich: it measured thirteen inches and a half total length, and thirty-one inches in the expanse of wings to extreme tip of each. The stomach contained the remains of a young sparrow.—*T. E. Gunn; 21, Regent Street, Norwich.*

Varieties of Kestrel's Eggs.—A gentleman living in this city had in his possession a tame kestrel which had laid three eggs this season: the first is of the ordinary type; the second had the smaller end, and extending over half the surface, of a pale reddish tinge, the remaining half being several shades darker; of the third, half the surface from the smaller end was pure white, the other half as in ordinary eggs of the species. The bird from some accident has since died, and has been preserved with the eggs in the same case.—*Id.*

Common Buzzard at Looe.—On Wednesday last a fine specimen of the common buzzard was trapped at Mowne, near Looe. The gamekeeper who had set the trap happened to be near it when the bird was caught, and immediately released it without the least injury, but instead of keeping it alive he unfortunately killed it, and sent it to me. The plumage is excellent, being of the dark variety, and beautifully mottled. *Stephen Clogg; Looe, September 12, 1867.*

Buzzards in Kent.—About the middle of this month I saw in the distance what I considered to be a buzzard, from the size of its wings, but as it was merely flying along, and not soaring, I was not quite sure. On my mentioning this to the keepers last night they informed me that a pair of buzzards had been seen near a certain wood for the last two or three days. Accordingly this morning I set out for the locality named, armed with a pair of opera-glasses, and very soon saw an unmistakable buzzard soaring in circles over a hop-garden. I at once saw that the bird I had previously seen was exactly like this one. Buzzards appear to occur especially in August, for on the 14th of August, last year, one was seen soaring at an immense height in the air. A few years ago these visits were very frequent, and five were

trapped in a season; now, however, they are protected, owing to their scarcity as a British bird. I may add that the keepers here, unlike those I read of in the 'Zoologist,' know every hawk by its proper name, and are therefore able to give much useful information. The head keeper tells me he saw a hobby here this summer.—*Clifton; Cobham Hall, August 23, 1867.*

Owls breeding in Confinement.—Having caught two large white owls last year, I placed them in a large wicker cage, where they have afforded much amusement to the patients. They proved to be male and female; and, having observed the former to be very attentive to the latter in the spring, I erected a large wooden box on one side of the cage. A nest was soon constructed, two eggs were laid, and a fortnight ago two little downy customers gave intimation of their presence. The old birds are indefatigable in feeding the owlets, and we well supply them with rats, mice and birds. Have any of your readers ever met with a like success? I have never heard of owls breeding in confinement before, and so I place this fact on record.—*Edgar Sheppard; Colney Hatch.—From the 'Field.'*

Yorkshire Haunts of the Pied Flycatcher.—When I was at Castle Howard, the domain of the Earl of Carlisle, I noticed the pied flycatcher. It was occupying the lower branches of an elm tree, frequently flying out on to the grass and returning. Once it flew away to some distance, but shortly returned to the same tree. My estimable correspondent Mr. A. F. Wordsworth, of Scarborough, informs me that it occurs pretty regularly near Scarborough.—*George Roberts.*

Young Lark feeding other young ones.—Last June, in Mr. Fisher's shop in Eton, I saw eight or nine young larks in a cage: some were about a fortnight older than the others, and one of the elder ones was always seen to feed all his small brothers and sisters in turn; and he never fed them out of their regular order, at least so Mr. Fisher informed me. I myself one day saw this bird feeding some of the others.—*Alexander Clark-Kennedy.*

Late Yellowhammer's Nest.—On the 26th of August I disturbed a yellowhammer from her nest: on looking into the nest I found three eggs in it, looking perfectly fresh; on my return the bird again flew from the nest, so there can be no doubt she was brooding over the eggs. On passing again in a day or two I found the nest had been destroyed. Is not this very late for birds of most kinds to be breeding?—*Stephen Clogg.*

Hawfinch at Selborne.—A pair of hawfinches flew across my lawn while we were at breakfast this morning, and settled in a fine *Abies Douglassii*, where I had the opportunity of watching one of them for some time.—*Thomas Bell; The Wakes, Selborne, Alton, Hants, September 8, 1867.*

Rosecoloured Pastor in Wales.—We have just found in one of our bed-rooms a very fair specimen of the rosecoloured pastor (*Pastor roseus*), a male bird, and very thin. Will you kindly inform me if these birds are often found in this country?—*Henry Platt; Bryn-y-Neuadd, near Bangor.* [The rosecoloured pastor is an extremely rare bird in this country, and we have no clew to the cause or periods of its visits.—*Ed.*]—*From the 'Field.'*

Great Spotted Woodpecker caught in a Trap.—On the 23rd of July last a great spotted woodpecker was caught in a trap which is constantly kept set for hawks, and came into my possession: it was an old female deep in moult and of but little value. Some time last summer another specimen of the great spotted woodpecker was caught,

and, as it was uninjured, it was put into a cage with the intention of preserving it alive, but as it was only supplied with bread soaked in milk you will easily imagine its fate, that of starvation: I did not hear of its capture for more than a week after it was dead.—*Stephen Clogg.*

Variation in the Plumage of the Green Woodpecker.—A friend brought me an adult female specimen of the green woodpecker, which he had shot on the 6th of May near Hethersett. The tips of the wings extended about two inches down each feather, and nearly the whole of the tail-feathers were of a rusty brown colour. I have previously noticed the same variation in the plumage of this species in the pages of the 'Zoologist.'—*T. E. Gunn.*

Variety of the Silver Pheasant.—On the 3rd of April a singular variety of the silver pheasant, an adult male, was sent me for preservation: it had been killed a short time previously in this neighbourhood, having been put up from the water's edge in company with some wild fowl, and the gunner, thinking it some unusual bird, shot it. Its whole plumage is of a dark brownish slate, with a few of the pencilled feathers of the ordinary type scattered here and there. In dissecting it, I found the heart, liver and intestines thoroughly diseased: this would of course account for its abnormal change of garb. In the stomach of the bird I found some barley, vegetable fibres, and a rather curious and indigestible morsel, viz. a felt gun-wadding, which was doubled.—*Id.*

Whitewinged Partridge.—On the 6th of September I shot a partridge with white wings and otherwise pied—a very rare variety in this district.—*Clifton; Cobham Hall, Gravesend, September 7, 1867.*

Hen swallowing a Slow-worm.—In the beginning of last month a young Minorea hen belonging to my uncle, residing near Exeter, was killed, and in its crop was found a slow-worm, about eleven inches in length, but very little decomposed. Is this a common occurrence?—*J. L. Langdon Fulford; Combe Keynes, Wareham.*

[I have never known of a similar occurrence.—*E. Newman.*]

Greenshank and Wood Sandpiper near Aldeburgh.—Three specimens of the green-shank were shot on the 11th of September, on the River Alde, near Aldeburgh, Suffolk; Mr. N. F. Hele procured one, and I got two of them: the gizzards of two were empty, but that of the third bird contained small seeds and legs and wings of some species of gnat. On the 13th instant I saw a pair flying over Thorpe Mere. I heard the note of the wood sandpiper, on several occasions last week, on Aldeburgh town mere. On the 11th, I saw two little stints feeding with a flock of dunlins on Thorpe Mere: I heard a stint's note on the 13th of September.—*A. Clark-Kennedy.*

Curlew Sandpiper near Aldeburgh, Suffolk.—On the 11th of September, Mr. N. F. Hele, of Aldeburgh, shot a curlew sandpiper on the Thorpe Mere, with a lovely red breast, it was with a flock of dunlins when shot. On the morning of the 13th of September, Mr. Paget shot another specimen of this bird: this bird had a white breast. I saw it feeding with a small flock of dunlins when it was killed.—*Id.*

Curlew Sandpiper, &c., at Grangemouth.—At the coast at Grangemouth yesterday (September 14th) my friend Mr. Belfrage and I killed two curlew sandpipers and one godwit, besides knots, ring plovers and dunlins. The number of waders on the spit of land near Avon-mouth was something wonderful, and I am sure that there must have been some other strangers amongst them. We saw several other godwits and curlew sandpipers distinctly.—*John A. Harvie Brown; Dunipace House, Falkirk.*

Great Northern Diver at Looe.—I was surprised last week by the appearance of a great northern diver in our bay: I saw it three or four days successively, although the season is earlier by two or more months than we usually first see them. On examining it through a good glass I was unable to detect the least appearance of summer plumage, yet I think it must be an old bird, as I cannot fancy a young one would be likely to find its way here so soon after the breeding season.—*Stephen Clogg.*

Puffin on the Norfolk coast.—Since my previous notice of the occurrence of the puffin on this coast, another specimen has been obtained; a male was shot during the latter part of June last on the Cromer beach, within a few miles of the former occurrence.—*T. E. Gunn.*

Occurrence of the Whitewinged Black Tern in Norfolk.—I had lately the great good fortune to secure for my collection a very beautiful adult male of this rare species, which had been shot on Hickling Broad on the 27th of June. The only other example known to have visited our coast was shot at Horsey, an adjoining broad to Hickling, on the 17th of May, 1853, and is now in the possession of Mr. Robert Rising: this bird was killed out of a flock of the common black tern; and my own, I have little doubt, arrived in like company, as both broads and meres this last spring were visited by a somewhat unusual number of black terns, now no longer nesting in Norfolk.—*H. Stevenson; Norwich, September 17, 1867.*

The Birds of Scandinavia.—A short time since I purchased at Messrs. Stevens' sale-room some works, formerly the property of the lamented correspondent of 'The Field,' Mr. H. W. Wheelwright, better remembered, possibly, by his *nom de plume* of "The Old Bushman." Amongst the books were copies of a pamphlet compiled by himself, and printed at Carlstad, Sweden. It is a comparative list of the birds of Scandinavia and Great Britain. It gives the Latin, the Swedish and the English name of all the species found in the two countries, and in a very succinct manner states whether they are permanent residents, occasional visitants or regular migrants, giving their summer localities and breeding-stations. To English visitors to the country of Sweden this pamphlet of eighteen pages, giving as it does the Swedish name of every species, must be very useful. My object in writing this note is to offer the copies, as far as they will go, to the readers of 'The Field.' I shall be willing to post one to any address on receipt of six postage-stamps, to cover cost and postage. If there should be more demand than I have copies to part with, I shall of course return the stamps to the latest applicants. I think that there may be some who, like myself, would desire to possess even so slight a souvenir of our lamented friend.—*W. B. Tegetmeier; Muswell Hill, London, N.—From the 'Field.'*

Curious Position of Nests.—This season I found a chiffchaff's nest in a rather unusual situation: it was placed some four feet from the ground in the ivy which clings on to the Albert Bridge, Windsor: it had three eggs in it. I found a willow wren's nest (also close to the River Thames) in a holly bush, about three feet from the ground. While staying at Brighton, at Easter, Mr. Pratt told me that he knew of a robin's nest which was being built in an old Wellington boot. I discovered a nightingale's nest, this season, some way from the ground in a laurel-bush. Out of the many reed-warbler's nests which I found this summer in the vicinity of Windsor only one was within five feet of the ground; most of these nests were six and seven feet above the ground, and at some distance from water: they were all built in lilac-bushes.

Mr. Harting, in his 'Birds of Middlesex,' seems to think there are different species of the reed-warbler; I believe he is right.—A. Clark-Kennedy.

The Lizards of Labuan. By Dr. COLLINGWOOD.

THE commonest of the lizards of this island, and indeed of the whole region, is the little animal called chick-chack (*Ptyodactylus gecko*), so named from the chirping noise it makes from time to time, and which might at first be mistaken for the voice of a bird. It is perfectly harmless, and often very familiar. They live in considerable numbers within doors, concealing themselves upon the roofs, and among the *attaps*, or palm-coverings, or crawling about upon the walls and ceilings. I have counted as many as two dozen overhead while I have been at dinner in a good-sized room, some as long as my hand, and usually pale-coloured. They vary, however, somewhat in colour, according to food and locality. I have been informed by credible friends of instances in which they would habitually come down upon the table and take food offered to them, and it is equally certain that they occasionally come down involuntarily, losing their precarious footing overhead while in chase of an insect, in which case they fall with a thump upon the floor or table, an accident which usually results in the loss of their tails, which break off with the shock or the fright, and it is by no means unusual to see them with their short stumpy caudal appendages in process of reproduction. Such an occurrence happening in the night I have found rather startling. If a moth or a butterfly flutters about near the ceiling, the chick-chacks are all upon the alert, running at it as it passes near them, and although the reptile may succeed in catching it, the insect is often too unwieldy for them, and they have considerable difficulty in securing it. They clear the house of mosquitoes and flies, however, and are never molested, but, on the other hand, always encouraged. A singular circumstance occurred to the colonial surgeon, who related it to me: he was lying awake in bed when a chick-chack fell from the ceiling upon the top of his mosquito-curtain; at the moment of touching it, the lizard became brilliantly luminous, illuminating the objects in the neighbourhood, much to the astonishment of the doctor, who had never before witnessed such an occurrence.

Another lizard of a larger size than the last is the barking lizard, which lives in trees and also about houses, from time to time betraying

its whereabouts by a sound resembling a short growl, followed by a short sharp bark, not unlike that of a puppy at play. When I first heard it in a tree, I looked up for a monkey, but on many subsequent occasions, it appeared very much like the barking of a small dog. They are very difficult to detect, however, cunningly concealing themselves, and although I have watched for one barking a few yards above my head in a tree, I have looked in vain for a considerable time. They are very fond of coming into houses, and are considered by the Malays as reptiles of good omen. They feed upon insects and moths, being particularly partial to *Sphingidæ*.

The iguana is a larger species, which reaches a length of seven feet. Although in other respects harmless it does considerable mischief among domestic fowls, frequenting the neighbourhood of houses for the purpose of robbing the hen-roosts. For that reason, they are destroyed, and moreover by some they are considered excellent eating. While drying some marine animals in the sun one morning, an iguana appeared upon the scene, walking on tiptoe across the grass, and lifting its head as if scenting something. On my driving it away it returned again three times to the spot, although the bait was not what I should have imagined to be very inviting. I was unwilling to shoot it, but two or three days after I fear it met with such a fate in neighbouring grounds, where it was found near the hen-roost. It was about four feet long, I believe these animals, however, do sometimes subsist upon marine animals, which they pick up on the beach. I have more than once observed them skulking among the roots of the trees close to the margin of the shore; and on one occasion, I passed and repassed the spot several times on purpose to observe it. Each time I passed it retreated into the jungle, but was always at its post when I came back. On one occasion I disturbed a large iguana in such a situation that in order to escape, it had to run some distance across an open space in my full view; and it did run tolerably quickly, but in a most ludicrous manner: the short and peculiarly situated fore legs had an awkward waddling motion, while the hind legs, seeming less encumbered, ran more quickly, and threatened to overtake the head, while the long tail followed behind, as if it scarcely belonged to it, swaying from one side to the other according to the direction the animal took. With all this, however, I should scarcely have caught it in a flat race.

Chameleons of more than one species exist in Labuan. The

natives have a great prejudice against them, and will not touch them, believing them to be deadly poisonous.

CUTHBERT COLLINGWOOD.

Variety of the Perch.—While fishing with trimmers in Virginia Water, near Windsor, last July, we caught a perch without any of the usual transverse lines perceptible. It was a large fish, but in bad condition: it weighed just 2lbs. The same absence of the transverse bands or lines in this specimen, was noticed in Mr. Gunn's fish, mentioned in the 'Zoologist' (S. S. 513).—*A. Clark-Kennedy.*

Ianthina fragilis in Dingle Bay.—On the 27th of August I found on the shore at Dingle Bay several specimens of *Ianthina fragilis*; they were quite alive, and had the peculiar apparatus of bubbles attached to them. I picked up ten beautiful specimens in a distance of about a mile. A great many more were destroyed by the oystercatchers, which were on the look out for them. The shore was strewn with the remains of *Velella* (lutea?): several of these were almost perfect and were covered with the beautiful purple jelly-like covering. There had been a fresh breeze from the S.W., but no gale of wind.—*E. C. Buxton; Daresbury Hall, Warrington, August 29, 1867.*

Mackerel in the Boulogne Aquarium.—Under this title I inserted what appeared to me a most interesting extract from the 'Field' newspaper (S. S. 917). Its publication in that excellent journal seems to have excited the animosity of Mr. Lloyd, the curator of the Aquarium at Hamburgh, who wrote a captious and somewhat offensive commentary on Mr. Smith's paper, which commentary also appeared in the 'Field.' Mr. Lloyd now asks me to reprint this commentary, but as it gives no additional information I prefer extracting from the 'Field' of the 21st of September, Mr. Smith's final reply to Mr. Lloyd's strictures, inasmuch as this reply will itself show to what passages in Mr. Smith's prior communication Mr. Lloyd takes exception. The subject of salt-water aquariums has for many years been one of unceasing interest to myself, and this must be my apology, if one be needed, for again introducing it to my readers.—*E. Newman.*

Keeping Mackerel in Aquaria.—In writing to the 'Field' an account of the introduction of mackerel into the aquarium of Boulogne, and of their conservation therein, I did not think it necessary to describe at length the aquarium itself, or even to specify the nature of those defects in its structure of which I hinted the existence. The observation of my friend Mr. W. Alford Lloyd, however, in the 'Field' of August 31st, that the aquarium of this town "is not what is ordinarily termed an aquarium, but a marine pond having sea-water pumped into it by a steam engine," might mislead many persons, not so well instructed in these matters as that gentleman, into supposing that the arrangements thus described possess some advantages over the arrangements ordinarily adopted for keeping marine animals in inland situations. I therefore beg to state that the sole advantage resulting to the Boulogne aquarium from its proximity to the sea consists in the facility thus afforded for obtaining animals either for exhibition or for food; and that it is not only possible, but easy, to construct aquaria in inland towns which would be capable of maintaining marine fishes for longer periods than those during which the same creatures could at present be kept alive in the aquarium above named. I will also—to save interrogation on this point—indicate the serious

defects which exist in the aquarium of this town. The first and greatest defect consists in the fact that it is "a kind of open-air pond;" and I call this exposure to the open air a defect because it is not possible to regulate the temperature of the water so exposed, because it is not possible to regulate the light, and because it permits the importation into the aquaria of dust, of leaves of trees, and of cuttings of grass, &c. The second defect consists in the uncertain and intermittent nature of the supply of sea-water. The third serious defect is that the sea-water pumped into the aquarium is taken from the swimming-bath of the "établissement," and this bath is filled direct from the port. As the town of Boulogne is drained into the harbour, it is just possible that the water may not at times be capable of supplying one of the well-known requirements of most fishes, leaving "pelagic" fishes out of the question. If there are any of the conditions above-mentioned which Mr. Lloyd would be desirous of securing in the construction of an aquarium, his views have been singularly modified since the time when I had the pleasure of being in daily communication with him. The species of mackerel to which I alluded in my letter to the 'Field' was *Scomber scomber*; but there were at the same time living in company with them eleven full-grown specimens of *Scomber pneumatica*, besides some hundred and fifty other fishes of various kinds, and ranging from six inches to upwards of forty inches in length, but which, from their well-known greater powers of endurance, I did not think it worth while to speak of. Mr. Lloyd takes exception to my statement with respect to the possibility of keeping *Scomber scomber* permanently, and also to what I have said to him privately in reference to the facility with which *Hippocampus brevisrostris* may be kept in confinement; but, whilst disputing that which I asserted broadly with regard to a species, he wishes to saddle me with a similar responsibility in the case of every individual of that species. This is slightly unreasonable. I may be "too hasty and positive" in this matter, and those who have had more practice may be more cautious in their assertions. I am willing to admit that they may have sufficient reasons for being so. I may observe that my "practice" began in July, 1856, and that I never penned a line for publication until July in 1867; and for the reason that, although I have long been in a position to write of what I *believed* could be done, I preferred waiting until I could write of what I *knew* could be done. If, from the hundreds of instances in which Mr. Lloyd has failed to keep his animals continuously, he will kindly select and quote a few cases in which fishes have died owing to the absence of some known condition which cannot be supplied in an aquarium, something will be established. If I can have given me by anyone a single sufficient reason why any ordinary fish which can live in aquaria for a month or two months (performing in a satisfactory manner during that period all the functions of life) cannot be so kept for a longer time, or for "the term of its natural life," then I shall very readily own that I have been "far too hasty and positive." Let me add that I shall be sorry to a corresponding degree for having been so. Until this can be done, I must be excused for preferring to draw my conclusions from those things which have been effected by Mr. Lloyd, by myself, and by many other persons, to having my views modified by the failures from unexplained causes which any person or any number of persons may have experienced. The implication that Mr. Lloyd wishes to attach to my statement, that certain animals can be kept indefinitely in properly constructed aquaria, is an entirely unwarranted one. It might as reasonably be assumed that the promise that man shall live "three score and ten years" implies that every man shall attain that

age. I have not previously made any allusion to "the lower marine animals," and I do not pretend to know all the conditions upon which depend their permanent well-being either in captivity or in freedom; but Mr. Lloyd, writing so long ago as the year 1858, was able to say that those conditions were "few and simple;" and in this I so far agree with him as to state my belief that many of these creatures may in captivity attain a greater age than they would probably ever arrive at in a state of nature. I do not lay claim to any exclusive knowledge; but that which I have done has been to seek most of the animals I endeavoured to keep in their natural *habitats*, myself collecting and carrying them home; and I have ever thus gained important hints towards success. The "money expression" of the matter of mackerel-keeping in London or Paris is not practicable in the form in which Mr. Lloyd wishes me to express it. It is not probable that anyone will incur an expense so disproportioned to the result which could by any possibility be expected as that which would be obviously necessary in the case supposed by Mr. Lloyd. But, should it at any time be in contemplation to construct a public aquarium of adequate size, and should I happen to be consulted in the matter, I will promise that it shall (if my advice be taken) contain suitable accommodation for mackerel; and that I shall be prepared to take those animals to either London or Paris. For Mr. Lloyd's satisfaction I may say that, as the means which I should have to organize for doing this would also serve to supply economically all the requirements of the aquarium, mackerel could then be supplied at as small a cost, and kept at as cheap a rate, as any other hungry fish of similar size and habits. I may say that in the early part of last week two of the mackerel were still living. The last of these disappeared on the night of the 29th of August, and the deaths of all three are attributed by the persons now in charge of the aquarium to predacious fishes of large size, which were confined in the same basin with them. This may or may not be the case, as there is no positive evidence to be obtained as to whether they were eaten after death or caught whilst living. This much, however, is certain, that during the past month they have been subjected to such ill-treatment as would suffice to cause the ultimate (probably the immediate) death of many fishes which it is known have been kept in aquaria during periods of many years. I have this week been told that *Hippocampus brevis* has propagated abundantly in the aquarium of Arcachon; my informant adds that the male carries his progeny about upon his tail.—*John Smith, late Keeper of Boulogne Aquarium; Boulogne-sur-Mer, September 3, 1867.*

*The Oyster Fisheries of New South Wales.**—The oysters of New South Wales may, for all practical purposes, be divided into two kinds: the mud-oyster, which resembles the English oyster, is found in beds in comparatively still water, generally unattached, or in clusters of two or three, having a soft shell, easily separated and growing to a large size; specimens have often been found measuring twelve inches by eight, with a depth of six inches: these oysters require great care to keep them alive when once taken out of the water; some of them will not survive for one day: they are not in demand, though there are extensive beds of them

* From a paper, by Mr. R. Emerson, read at a Meeting of the Acclimatization Society, on the 25th of June, 1867.

at several places along the coast, as at Pitt Water, Brisbane Water, Botany Bay, Port Aiken, Wogonga, Jervis Bay, Sydney Harbour and Panbula. The Western Port, Port Albert and Port Phillip oysters in Victoria, and the Spring Bay oysters in Tasmania, are all of this species. The other kind of oyster, whether named rock, cluster, drift, bank, whelk, channel, mangrove, half-tide, or bay oysters, are of one species, and all have in common a very hard shell; they will live out of the water from three to six weeks and improve. The beds or grounds are all situated in salt-water creeks extending inland, and communicating with rivers, or in estuaries, where there is a strong tide-way. They are mostly attached to each other in bunches, the roots of which are firmly fixed in the bed, some adhering to rocks, boulders, mangrove stumps, snags and whelks, but are never found unattached: the oysters of this class will require a very different system of protection to the former. The spawning season differs in each river; in some, each bed has a different time; in many places the bank and deep-water oysters differ as much as six months in their time of spawning. Some oysters have been known to spawn only once in three years, while others again will spawn two or three times in a year; but in all cases they are very much influenced by the weather, for, when any are ready to spawn, a cold, rainy south-east wind setting in will throw them back for a month. The greater portion of the oyster-spawn or spat that escapes destruction will be found attached to the large oysters, and when about two months old has the appearance of a fish-scale, and has but one perfect shell, the other being only partially developed, and cannot be removed from its place of attachment without destroying it. For these reasons I consider that a general close season, or three or four months in the year, would be all but useless, as no particular three or four months in the year will cover the spawning season of half of the oysters, and it would be very little protection to those it did cover, as directly after the close season the oysters may be taken, and from it being impossible to separate the young oysters their destruction will be inevitable when the old ones are removed. The proposed close time is also not a general spawning season, but occurs when most of the oysters are in the finest condition—the Camden Haven, Manning and George's River (deep-water oysters), and the Port Stephen bank-oysters spawning in May. One cause of the deterioration of certain oyster-beds is that, after the regular oyster-gatherers have discontinued working, and left them to recover, settlers and others are continually dredging, thus destroying the young oysters. Another great cause of destruction is the taking of oysters and shells to burn into lime; the shell-dredgers on the Hunter, for example, go to work on any part of the oyster-grounds, taking up oysters and shell indiscriminately, thus not only destroying the oysters but the oyster-grounds as well, removing the whole of the bed, which, in many instances, is six feet thick of solid shell, leaving nothing to which the spat can attach itself; and thus thousands of bushels of oysters are destroyed, and the beds are gradually reduced in size. From Broken Bay there are four or five vessels constantly employed in bringing live shell—that is, young oysters—to Sydney for the lime-burners. They bring about 65,000 bushels annually, in addition to which about half that quantity is burnt in the river, making a total of 97,500 bushels of young oysters destroyed every year, in that place only; and a similar destruction is taking place over nearly all the oyster-grounds. Oyster-beds are often destroyed by freshes in the rivers, covering them with a deposit of silt; and a shift in the channel of a river will sometimes be another cause of their destruction by diverting their food. Oyster-beds are considerably improved by being

properly worked, as it extends and enlarges them, and also gives the young oysters room to grow and spread, and the oysters are always of better quality and larger after the ground has been once cleared. I consider the most effectual way of protecting the oyster-beds, and to ensure an efficient and never-failing supply, would be to prohibit the burning of oysters into lime, to work one-third of the oyster-beds at a time, changing once every year, so that each oyster-bed will have two years' rest, which would be sufficient time to replenish themselves, and one-third of the beds properly worked would yield a supply of excellent oysters, very far in excess of the present demand. It would also be advisable to place some restriction on the taking of oysters, either by issuing licences, or by leasing the beds for a term of years. There is much injury sustained, and thousands of bushels of oysters thrown away, from the want of some such regulation. If a new oyster-bed is opened, there is an immediate rush to it, the best of the oysters are forced into the market, the supply for a time far exceeds the demand, and a large proportion of those sent up find their way to the lime-kilns. It would also be desirable if facilities could be given to persons desirous of forming artificial receiving and feeding beds for oysters, to be permitted, under certain regulations, to select suitable localities for their formation, to be legally secured to them. By the establishment of such places, a large quantity of oysters would be saved that are at present thrown away.

The natural oyster-beds of New South Wales are both numerous and extensive: I append the following list of some of them:—Tweed River: very fine oysters; never been worked. Richmond River: very fine oysters; never been worked. Clarence River: small oyster; very good and extensive beds. Camden Haven (recently opened): fine oysters; very large beds, reported able to fully supply the market for five or six years. Manning River: fine oyster-beds, worked out, but will recover in two years if left untouched during that time; has been worked out four times. Wallis Lake: extra fine oysters, but requires a rest. Port Stephens: numerous beds of large extent; has been worked continually for fifteen years, and is still in good working condition. Hunter River: most productive oyster-beds in the colony; oysters small, but very good; has been worked out five times, but always recovers with a two years' rest; is now in full work after an eighteen months' partial rest, and is supplying about one thousand bushels a-week, besides probably double that quantity destroyed by the shell-gatherers: I estimate the supply from the last working at 168,000 bushels. Lake Macquarrie: small extent. Broken Bay: oysters secondary quality, unlimited in quantity: all the creeks running into it full of them; has been in constant work for the last ten years, and is still sending an undiminished quantity to the market, and of an improved quality latterly. Sydney Harbour and Parramatta River: chiefly mud-oysters; in some parts worked out, and others died out, the oysters having perished on the beds; there are some young mud-oysters on the Parramatta River, but they are not sought after. Botany Bay: small oysters. George's River: very fine oysters; requires a rest. Port Aitken: small rock and mud-oysters, none coming to market. Shoalhaven: very good oysters, but indifferent keepers. Crookhaven: very good oysters; extensive beds. Jervis Bay: large beds, mud-oysters; none sent to market. Wogonga: small drift and large mud-oysters. Tuross River: good oysters. Clyde River: extensive beds of various kinds of oysters, very good when arrived at maturity; requires a two years' rest, after which it could supply 1500 bushels a-week for twelve months. Durass Lake: small extent; very fine oysters; wants a rest. Panbula: abundance of good oysters; not worked. Berramagui: very fine oysters; large beds, not worked.

Polack Lake: large beds; never been worked. Nelson River: large beds; never been worked. Warego Lake: very extensive beds; never worked; been prospected, and the oysters found very good. Merimbula: good oysters; not many sent to market. Ulladulla: large oysters, and very good. Twofold Bay: small oysters, but in great quantity.

In conclusion, I may observe that at present there is no scarcity; but, on the contrary, a redundant supply of oysters. I estimate the annual supply to Sydney at 31,200 bags, equal to 109,200 bushels, which supply could be doubled if required. The oyster-fisheries find direct employment for at least 250 persons, seven small vessels, besides those brought by the steam-boats. Our yearly export of oysters, principally to Victoria, I estimate at 63,000 bushels, of the value of £13,500, and our home consumption at 46,200 bushels, valued at £16,500.

The Fate of Piebalds and Rare Birds.

By J. D. JEFFERY, Esq., F.R.C.S.

WE have in Worcester a little Book Society, and we take in no works but scientific periodicals, among which the 'Zoologist,' as a matter of course, has a place. I do not know that there is one among us who is a great collector of either animals, birds or insects, but we like to hear and know something about what is being done by others in Natural History. With this admission, it may be that the observations I am about to make will be considered of little account; on the other hand, it is possible that the remarks of those who, having a love of Nature, are obliged for the most part to become acquainted with her beauties and her "freaks" through the labours of others, may not be quite unworthy of notice.

My theme is the fate of piebalds and also of occasional visitors of the feathered race to the United Kingdom. I observe in almost every number of the 'Zoologist,' among the "facts and anecdotes," that information is given of the destruction of two or more varieties of animals or birds which have been met with by different enthusiastic collectors. Now I must confess that when I read these fatal communications I have a strong Darwinian wish that for "collectors" I could read "preservers," in the true and living sense of the word. I have an idea, in fact, that if the first specimens of varieties in colour which are met with, both in birds and quadrupeds, were carefully shielded from harm, "preserved" instead of "murdered,"—forgive the word,—that in course of time we might have a greater and, in one sense, more pleasing variety of our Fauna than we have at present.

My mind has been impressed with this belief from reading the numbers of the 'Zoologist' which have come before me since our Society has been formed, and I will now quote, from the September number for 1866, some observations which have served to strengthen the impression.

1. Three or four piebald varieties of rats are stated to have been killed. I fear rats must be destroyed when met with.

2. Three specimens of the gray variety of the common hare killed, and also one with a large patch of white on the forehead.

3. Rabbits, because they happened to have been white and chestnut. Why were they not left alone and allowed to multiply?

4. A red deer paid the penalty of death for being prettily marked. Would not a variety of the deer tribe be ornamental in our parks?

Next a gentleman writes that he had obtained a female blackbird with white feathers, and says, "I had to bide my time quietly until I could bag it for my collection." What a painful state of suspense he must have been in!

Then a stone curlew is reported to have been killed because it was rarely seen in the locality, not because it was wanted.

In the same number is a notice of the 'Dictionary of British Birds,' in which the frequent advent of the sand grouse to this country is mentioned, and the Editor remarks, "It would be very interesting if these birds were to breed on the English moors." I should say they might do so if collectors would give them a chance, and let them alone.

There are many birdstuffers in Worcester, and there is not one, I believe, who has not his white blackbird, or starling, or sparrow, or even white swallow in his window. A few years ago there was no collector's shop in which there was not a piebald pheasant or two; now one is scarcely thought worth stuffing: the fact being that a piebald pheasant is no longer a curiosity, in consequence of their having been placed, *de novo*, under protection, and so they have increased and are to be found about here adorning every preserve, and I often see them hung up in the shops for sale. What is the inference from this, as regards varieties of other birds or animals?

J. D. JEFFERY.

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Notes of a Slay at Prussia Cove. By THOMAS CORNISH, Esq.

I CAME to this little cove (opening S.E.), for a few week's fishing, four weeks ago, and from that time to the present we have only had two periods, of less than ten hours each, during which the wind was anything west of S.W. or east of south—a remarkable thing for August month; consequently I have only been able to do rough-weather fishing.

I have taken the "small-eyed" or "painted" ray (*Rayii microcellata*), in numbers which justify one in saying it is common here. Altogether I have taken eighteen specimens, of which three were males; the two largest of the whole were males: all were taken by bait of pilchard and by hook: I have not shot my spillers once without taking some. I have in former years taken this same ray in this cove, but not so numerously. It is well known to the fishermen here by the name of "the owl." I have had two specimens (a male and female) preserved for our Museum; and, on examining them since they have been set up, I observe that the row of spines which extends from just behind the eyes to the origin of the caudal fin (or rather to the origin of the dorsal fin which immediately precedes the upper lobe of the caudal) is not single throughout, but here and there breaks up into little bunches of small spines. The male also has, on the first convex curve of the anterior margin of the wing, a bunch of spines (I might with propriety say hooks), very fine, arranged in irregular rows, and in my specimens—fourteen in number—it also has two rows of similar spines or hooks just inside the extreme margin of each wing. The female has not any of these spines.

A specimen of the short sun-fish (*Orthogoriscus mola*) has been brought on shore since I have been here. It was three feet four inches in length over all: four feet one inch from tip to tip of its dorsal and ventral fins, and two between the bases of the same fins. The head was, as usual, the broadest portion of the fish, and was nine inches broad. The head was one foot two inches in depth through the eye, which was nearly two inches in diameter. The eye appeared to be larger, and the whole shape of the fish more triangular than those of the other specimens which I have seen, but I think these were merely accidental variations.

When I could not get to sea I amused myself by catching the common shanny, and observing some of its habits. Not only are these

little fish in the constant habit of basking on the rocks out of water near the pools left by the receding tide, but they actually and habitually take refuge in crannies which are left altogether high and dry, and may be found there of all sizes just as readily as in the pools or under stones, when once one learns where to look for them. They have the power of regular progression upon land. On the 5th instant I put four into an earthenware pan which has done duty here as my vivarium, and put the pan on a table in a passage near the door of a sitting-room which was left open. On going to them after dark I found the largest shanny missing, and on search I found it jammed in head-first behind the leg of a chair in the sitting-room, apparently well satisfied with its place of refuge. To get from the pan to this place the shanny must have escaped from the pan, tumbled over the table on to an oak floor, and crossed about a foot of this floor, a door-mat and a carpet. By the shortest possible route it must have travelled over four feet two inches of ground. I restored the fish to the pan, and it was no worse for its journey next day. I took another and smaller fish, and put it on a table covered with a table-cloth, over which it at once began to move. It progressed by bending its tail alternately side and side, and then using it on each turn as a fixed base whilst it jerked itself forward by its ventrals, which, as you know, are more like two fingers tied together by a membrane than like fins. It went forward in a straight line and rapidly. It cleared nearly its own length at each step, and got over three times its length in each second of time. When held by the tail it sprang violently around, evidently by the action of its ventrals. It repeated these performances on the carpeted floor; but one of larger size, tried on the oak floor, failed to go so fast. It did not clear half the ground per step which the smaller one did, which I attribute to the superiority of holding-ground afforded to the smaller one by the cloth. This fish bites fiercely, holding on like a bull-dog. I took several specimens, having a ground colour of black over the back and dirty white on the belly; dull-looking things compared with the others, but not distinct in species.

I captured two specimens of Montagu's blenny (*B. Montaguï*) and one Cornish sucker (*Lepidogaster cornubiensis*), which held on to the side of my pan by its sucker long after it was dead; indeed until it was forcibly removed.

I have obtained besides pollack, conger, scad (or horse mackerel), bream, gray gurnard, sapphirine gurnard (or tub), rough dab, homely ray, *Cottus bubalis*, blue shark, picked dog-fish, basse, atherine, gray

mullet, Ballan wrasse, the small green wrasse, and, last but not least, turbot; but these are too common to require further notice, and are only half the fish I ought to have listed.

I was called to see two sword-fish (a large one and a small one) playing, but each time arrived too late. Porpoises, of course, we saw.

I obtained a specimen of the long-armed munida (*M. Rondeletii*), which was washed on shore, in some of the heavy weather, dead, but perfect, except the exterior antennæ. The specimen was small, and deformed by a protuberance of the shell on the right-hand side of the branchial region of the carapace, but was certainly identical with the *M. Rondeletii* of Professor Bell.

I obtained from crab-pots shot deep, and after five days' heavy weather, the long-legged spider-crab (*Stenorhynchus Phalangium*).

I took *Xantho florida* abundantly, mature, but not large; one specimen was just hardening, after casting its shell. I took, besides, many crabs (indeed as many as I wished) of smaller size, which puzzled me. They agreed mainly with *X. florida*, but some had fingers distinctly brown, and not black; some having black fingers had minute beading on the anterior edge of the carapace between the eyes; some having black fingers and some having brown fingers, had each of them a seam or dotted line, but not a groove down the outer side of the moveable finger. Traces of this seam were to be seen in some of the largest specimens. The shape of the carapace and the ciliation of the hinder legs agreed with those of *X. florida*. Amongst these small crabs the variations of colour were very remarkable—self-coloured, of a chocolate-flint tint, and again like gray flint, dark brown with three regular white spots, and one specially was self-tinted mauve with a narrow white border all round, so that when at rest it looked precisely like one of the bits of broken water-worn blue shell which are common on every beach. Put into my pan they all exhibited precisely the same peculiarities of habit. The large ones appeared to find themselves without sufficient scope and lay still, but the smaller ones, without exception, placed themselves in ambush, some under stones and weed: the flint-coloured ones, the white-spotted and the gray buried themselves in the small pebbles, and lay with just the anterior edge of the carapace and the tops of their large arms (closely folded) exposed on a level with the surrounding pebbles, in which position they looked very much indeed like bits of flint and pebbles, and were manifestly ready to spring on any prey which came within reach.

The pretty little mauve-coloured one lay with its hind legs only concealed, and its whole carapace level with the surrounding pebbles. In all the specimens which I captured or saw, I noticed the tendency to be perfectly motionless, with legs and arms tucked in under them on being alarmed. They simulated rather the pebbles around them than death in doing this. The colours of all my specimens have faded in drying. I have kept them for reference. It is certain that none of these were *X. tuberculosa*: it is equally certain that they intermingled some of the distinctions usually considered specific between *X. florida* and *X. rivulosa*. It is notoriously difficult to distinguish between these two species. I at present incline to say that all my specimens are *X. florida* in various stages of development, but the differences existing in my various specimens prove the species worthy of careful attention.

The common shore crab (*C. mænas*) was very clever also in burying itself in sand, using its broad and partly-finned hind legs as shovels; and some of its larger and finer specimens showed a close approach in these finned legs and feet to the true swimmers.

The hairy porcelain crab (*P. platycheles*) is common here, as also are of course lobster, crayfish, spinous spider-crab (*M. Squinado*) and the common edible crab (*C. Pagurus*); of these last I obtained several specimens in which the female had retired to a hole in the rocks to cast her shell, and had been sought by the male, and I took the old shell of the female, the female herself just hardening, and the male crab in his old shell altogether.

I do not know anything about Conchology, and therefore do not know whether a shell identified for me by a friend as *Murex purpurea* is rare or otherwise; but the fishermen here tell me that it has not been seen on these shores for several years, and I can say of my own knowledge that it came on this occasion in a large "school." There was none on the beach up to Tuesday, September 3rd, but there was a spell of fine weather, with a very smooth sea in that way, and on Thursday, the 5th, the beach was strewn with the shell, perfect and broken, and in several specimens I secured the occupant with the shell. Some days, however, before this I had picked up on the sands a curious bladder-like substance, about an inch and a half long, having three lobes, which I think I can identify with the bladder of the *M. purpurea* divorced from its shell and exhausted of air, and which, if I am correct, was a foreboder of the approach before the wind of the shell from the southward.

I have secured also some specimens of a mollusk called by the fishermen here the "bladder-fish," which I cannot yet identify: I shall probably trouble you again about this.

I have also noted a large cuttle-fish which I think to be *Octopus Cuvieri*, but which I have not yet identified: it is the largest cuttle-fish I have ever seen.

The cliffs here abound in wild cabbage, which I have tried as a vegetable and found rank, but very palatable when treated with vinegar: the natives tell me it is much more tender and less bitter in spring.

THOMAS CORNISH.

Prussia Cove, Mount's Bay,
September 9, 1867.

The distinguishing Characters of some nearly-allied Species of British Birds. By J. EDMUND HARTING, Esq., F.L.S.

"WHATEVER theories we may hold as to the existence of species in nature, and as to what constitutes them, in practice it must for the present, we imagine, be left for naturalists to receive or reject them according to their own private judgment. But at the same time, where constant differences, however small, can be observed between particular groups of organic forms, we maintain that these constant differences are worthy of observation, however variable be the value assigned to them as specific characteristics. Accordingly we consider that those who neglect to observe them are rather impeding than advancing the progress of Natural History, and are not fulfilling the duties which belong to them as natural philosophers. This last, be it remembered, is really a matter of no small importance, since the popular estimate of a science like natural history, whose results are comparatively barren in utilitarian application, is always proportionate to the opinion formed of its student's abilities."*

Endorsing the opinions expressed in the foregoing extract, it will be our aim in the following pages to point out the distinguishing characters of some nearly allied species of birds, which from their *general* resemblance are confounded or overlooked by the casual observer. In doing so we shall confine our attention to those only which are at present included in the British Avifauna.

* 'The Ibis,' January, 1862, p. 53.

Commencing with the Raptores, it may be observed that between the hawks and falcons, properly so called, and the true eagles, the chief distinguishing marks are the form and shape of the bill and the length of the outer feathers in the wing. The bill of an eagle is comparatively long, terminating in a hook, whereas that of the falcons and hawks is short, and begins to bend from the base. In an eagle, the first second and third feathers of the wing are shorter than the fourth and fifth; whereas in the hawks the second feather is the longest, and the first and third of nearly equal length, and in the true falcons the first feather is the longest. There may be exceptions to this rule, but generally speaking it is sufficiently correct for practical purposes.*

Golden and Whitetailed Eagles.—A good distinguishing character in the golden and whitetailed eagles is that the golden has the legs feathered to the toes, while the whitetailed eagle has the tarsus bare. The number of scales on the toes also differ in each: the golden eagle has three on each toe; the whitetailed has eight on the first and third, and nine on the middle toe.

Greenland and Iceland Falcons.—Perhaps no question connected with the European avifauna has provoked more discussion than that of the three great northern falcons. To take even a glance at all that has been written upon this topic would not only exceed the limits of the present paper, but it would, moreover, be an unnecessary repetition, inasmuch as a very able review of the subject appeared in the 'Ibis' for January, 1862 (pp. 43-53), and to this we take leave to refer our readers. We may, however, so far enter upon the question as to point out the distinguishing characters of the Greenland and Iceland falcons, since this properly falls within the scope of the present essay, and will be best achieved by presenting the following short extract from the able review to which we have referred:—"It is always easy to determine not only whether any specimen is immature or adult, but also to which of the two forms it may belong. In the young of both birds, the general character of the markings is that of streaks running *along* the shaft of the feather, while in the old ones they are as invariably found to be running *across* the shaft. This is all that is absolutely necessary to distinguish between them, though other equally unmistakable signs may be observed if looked for. One of these, however, the colour of the cere, legs and feet (which in the young are bluish or lead-colour, but in the old birds are tinged with yellow), is not always

* Stanley's 'History of Birds,' sixth edition, p. 122.

to be trusted in living examples which have been kept long in captivity; for confinement, and perhaps the want of perfectly fresh food, seems often to interfere with the natural development of colour in those parts. To distinguish between the two *forms* can scarcely be said to be more difficult. In the first place, the bills and claws of the Greenland bird, seem to be in life always white, or nearly so, while in the Iceland the same parts are more or less dusky horn-colour. It occasionally happens however that, on a cursory inspection of dried specimens of the Greenland race, these organs present a somewhat dark appearance, but this will be found on closer inspection to be merely the effect of extravasated blood. Another character is, that though there is very considerable variation between individual birds of either form, it will always be found that in the Greenland falcon, the white is, as it were, the ground colour of each feather on which the dark marking is displayed, whereas in the Iclander the ground is dark with a light marking thereon. In other words, in the Greenland bird at all ages the prevailing hue is white, while in the Iclander it is dark, being brown or gray, according as the specimen is young or old." Amongst the smaller falcons and hawks there are no two species, we imagine, which could by any means be confounded, at all events in the adult state, and we therefore pass on to the owls. Here again on reviewing the British species of this genus it appears that there is but one about which any remarks need be offered.

Little Owl.—The little owl, which is occasionally seen in England, is sometimes confounded with the Swedish little owl, which has not been found in this country. The latter has its toes thickly covered with downy hair-like feathers even to the claws, and the tail extends nearly an inch and a half beyond the closed wings, whereas in the British bird it is scarcely longer than the wings themselves; moreover, in the little owl of Britain, the first wing-feather is equal in length to the sixth, the second like the fifth, the third longest. In the Swedish little owl, the first is like the ninth, the second like the sixth, the third and fourth the longest.

Passing on to the *Insectores* we come to a consideration of the genera *Sylvia* and *Salicaria*, and perhaps no birds are more generally overlooked, or, when noticed, so frequently confounded as some species in these two genera, as, for instance, *Sylvia cinerea* and *curruca*; *Salicaria arundinacea*, *phragmitis*, *aquatica*, *palustris*. Only within the past year has one of these (*S. aquatica*) been made known as a British bird, although it had been obtained in this country more than

ten years previously. The retiring habits of this class of birds, their sombre plumage, and their general resemblance in size as well as in colour, will easily account for the confusion which exists respecting them.

Reed and Sedge Warblers.—The reed warbler may be distinguished from the sedge warbler by its being a longer and slimmer bird, by the uniform colour of the head. In the sedge warbler the most conspicuous characters are a white line over the eye, a darker back, and dark centre to wing-feathers with lighter margins. In the reed warbler the feathers are more uniform in colour. The two species differ also in their note and flight. The note of the reed warbler, as distinguished from that of the sedge warbler, may perhaps be best described as more of a song and less of a chatter, clearer, less harsh, and more sustained. The sedge warbler is a great imitator; the reed warbler is more original. The nests and eggs of the two species differ considerably. The nest of the sedge warbler is placed on the ground, formed of dry grass and lined with hair. The eggs are yellowish brown. The nest of the reed warbler is supported on reed-stems formed of the seed-branches of the reed and long grass, coiled horizontally round with a little wool, including the upright reeds in the substance. The eggs are greenish white with dark green and brown freckles.

The specific characters of *S. aquatica* have lately been pointed out in a note recording the occurrence of this species for the second time (so far as is known) in England (S. S. 946).

Wood Warbler, Willow Warbler and Chiffchaff.—The wood warbler, willow warbler and chiffchaff all closely resemble each other, and by one not used to notice the distinctive characters of birds may be easily confounded. The chiffchaff, however, may be known by its smaller size and darker colour, and by the colour of its legs, which are dark brown. The legs of the willow warbler are pale flesh-colour, while the wood warbler is a brighter green above, and a purer white beneath, the yellow line over the eye more distinct, the tail shorter and the wings longer in proportion. In addition the song of each differs sufficiently to afford when at a distance a good means of distinction. In Bennett's edition of White's 'Selborne' may be found a note, in which the editor points out that the relative length of the second and third quill-feathers may be considered a constant distinguishing character in these three species.

Goldcrest and Firecrest.—Many people suppose that the only difference between the goldcrest and the firecrest consists in the crest of the latter being of a more flaming yellow than that of the former. If this were so the difficulty in distinguishing the two species would be great. A much clearer difference than this, however, exists: the firecrest invariably has a white line both above and below the eye, and a black line running through the eye; hence Temminck called it "Roitelet à triple bandeau." These three lines are absent in the goldcrest.

Cole Tit and Marsh Tit.—The marsh tit may be known from the cole tit by the absence of the white spot on the nape of the neck, which is always present in the latter bird.

Pied and White Wagtails.—We believe it is still a disputed point amongst naturalists whether the pied and white wagtails are really distinct species, or whether one is only a different form or variety of the other, owing its variation to the influence of a different climate, soil and food. But the same may be said of many other allied species; and it becomes necessary to decide what constitutes a species, an inquiry which is by no means easily answered. That certain differences which appear to be constant, do exist, however, between the pied and white wagtails may readily be seen on a comparison of the two birds so called, especially if adult specimens in summer plumage be selected. We will do no more than point out the differences between them, leaving it to other naturalists to receive or reject them as distinct species. In the white wagtail the head is covered with a distinct hood of pure black, perfectly defined and not mixing either with the gray of the back or the white of the forehead; the white on the cheeks and sides of the neck completely separates the black of the head from that of the throat and breast, there being no black before the shoulders; the sides also are much lighter and the tail somewhat longer. In the female there is no mixture of black on the back and nape, which there is in all the females of the pied wagtail which I have examined.

Yellow and Grayheaded Wagtails.—That pretty summer visitant the yellow wagtail and its congener the grayheaded wagtail, less common in England than on the Continent, are almost as frequently confounded as the pied and white wagtails, and in their immature state it certainly is not easy to distinguish them. When fully adult the chief points of difference between these two species may perhaps be best shown as follows:—

YELLOW WAGTAIL.

Head pale olive.
 Over eye yellow line.
 Chin and throat yellow.
 Two outer tail-feathers on each side
 white, with a streak of black on the
 inner side.
 All the others brownish black.

GRAYHEADED WAGTAIL.

Head gray.
 Over eye : . . . white line.
 Chin and throat white.
 Two outer tail-feathers on each side
 white, with a black border on the
 inner side of each; that of the second
 feather being broader than that of the
 first.
 The third feather black, with a narrow
 outer edge of white. The six central
 tail-feathers nearly uniform black.

Meadow and Tree Pipits.—The pipits, which hold an intermediate place between the wagtails and larks, have the slender bill of the former and (with one exception) the long hind claw of the latter. The meadow pipit and tree pipit might be confounded by a casual observer, but the latter may always be distinguished from the former by its larger size and short hind claw. The habits of these two species are very different, one of them, as its name implies, being much more arboreal, the other seldom perching upon trees, but living almost entirely upon the ground. Again, the note always affords a sure means of distinction; but in this, as indeed in other similar cases, each one must learn for himself. It is next to impossible to describe the notes of birds accurately, and more particularly those of the small birds.

Sky Lark and Wood Lark.—We have heard many persons express a difficulty in distinguishing the wood lark from the sky lark, owing to their similarity in colour; but the wood lark is a smaller bird, and has a very short tail compared with the other. It differs also in several other respects, as will be seen by the following table:—

SKY LARK.

Entire length 7 inches 3 lines.
 Bill stout.
 No line over eye.
 Ear-coverts light brown, with dark brown
 tips.
 Crest-feathers short.
 Spots on breast on a brownish white
 ground look confused and indistinct.
 Abdomen dirty white.

WOOD LARK.

Entire length 6 inches 3 lines.
 Bill same length, but more slender.
 Yellowish white line over the eye, ex-
 tending to the occiput.
 Ear-coverts dark brown, with black tips.
 Crest-feathers long.
 Spots on breast on a lighter ground and
 more distinct, resembling the pipits.
 Abdomen purer white.

Tail 2 inches 9 lines; feathers long and lanceolate, giving the tail a forked appearance when half closed; outer web of outside tail-feather white.

Tarsus stout, 1 inch, dark brown; toes 1 inch, dark brown; claws black; hind claw long, but variable.

Tail 2 inches 2 lines; feathers short and ovate, giving tail square appearance when half closed; outer web of outside tail-feather brownish black, with very narrow white margin.

Tarsus slender, 10 lines, light brown; toes 10 lines, light brown; hind claw somewhat shorter.

The Lapland bunting may be considered as the connecting link between the larks and buntings. In its plumage generally and in the length of the hind claw it resembles the larks. Its habits are also similar to theirs, living on the ground and seldom perching; it walks like the larks, and does not hop like the true buntings. As a rule, the buntings are all so very unlike each other that it would be impossible to confound them.

Cirl and Yellow Bunting.—The cirl bunting and the yellow bunting are perhaps the two which most resemble each other, but the male of the former may always be known from the latter by its black throat.

The Greater Spotted and Middle Spotted Woodpeckers.—Some doubt has, not unreasonably, been expressed as to the claim which *Picus medius* has to rank as a British bird, and with a view to this question, and for the benefit of those who may have opportunities of studying our woodpeckers, and who are not acquainted with *Picus medius*, it will be well to point out the respects in which this species differs from *Picus major*. Apart from its smaller size and more slender bill and legs, *P. medius* has no black on the crown of the head, but the red (which in *P. major* is confined to the occiput) in this bird extends over the entire crown to the forehead, which is grayish white. In *P. major* there is a black moustache running from the base of the bill on either side below the cheeks and terminating in an irregular patch of black; but in *P. medius* the black patch only on each side of the neck is seen, the moustache being absent. In *P. major* the second feather in the wing is half an inch *shorter* than the third, and has no white spots upon its outer web; in *P. medius* the second feather is a quarter of an inch *longer* than the third, and its outer web has white spots at regular intervals to the tip, which is also white. The red colour on the under tail-coverts, although not so bright in *P. medius* as in *P. major*, extends much higher towards the breast in the former, and the sides of the breast and flanks, which in *P. major* are of a uniform stone-white colour, are in *P. medius* striated,—that is to say, that

each feather upon the same parts, although of the same tint as regards ground colour, has in addition a narrow streak of dusky black down the centre of each feather. This is a marked character in the species, and will, in all stages of plumage, distinguish it.

Pigeons.—The different species of our wild pigeons can scarcely be confounded. The wood pigeon or ring dove is conspicuous by his superior size and white collar. The rock dove shows a white rump. The stock dove has neither of these distinguishing marks, but is almost of a uniform plum-colour. The smaller turtle dove, which is a regular summer visitant, and the rare passenger pigeon from North America, are so totally different from every other species that they cannot possibly be mistaken.

Golden and Gray Plovers.—The golden and gray plovers in their winter plumage are by many not distinguished, but the golden plover is the smaller bird, has shorter and more slender bill and legs, and has no hind toe like the gray plover; while the long feathers under the wings in the golden plover are *white*, and in the gray plover *black*. The gray plover before arriving at maturity has yellow spots like the golden plover, which at first sight would seem to increase the difficulty in distinguishing them.

Ringed and Little Ringed Plovers.—It would appear that, notwithstanding its smaller size and more slender form, the little ringed plover is not distinguished by the majority of persons from the common ringed plover. Even old sportsmen who have shot scores of ringed plovers have sent us the young of *Charadrius hiaticula* for *C. minor*. Apart from size and shape, the following characters will always serve to distinguish the latter from the former bird in any stage of plumage. The shaft of the first quill-feather only is white, and the white spots, which are always present on the webs of the wing-feathers in the common species, and which give the appearance of a white bar across the wing in flight, are in the little ringed plover absent, and in lieu thereof the tips only of the wing-feathers are margined with dull white. In the last-named species also there is a dusky spot on the inner web of the outer tail-feather on each side, which feather in the common ringed plover is generally pure white.* The colour of the bill and legs is very similar in both species.

* From an examination of numerous specimens, it appears that this character in *C. hiaticula* is not constant, some individuals having the outer tail pure white, while others exhibit the dusky spot on the inner web of that feather, as is the case with *C. minor*.

Green and Wood Sandpipers.—The wood sandpiper may be distinguished from the green sandpiper, which it closely resembles, by the following characters:—It is rather smaller in size, has proportionately a shorter bill and longer tarsus; the legs are lighter in colour, and it has not the white markings under the wings which are conspicuous in the green sandpiper. A marked difference also exists in the tail-feathers. In the green sandpiper the tail is, for the greater part, white, the outside feather on each side with one small dark spot on the outer web near the end; the next feather with two dark spots; the third and fourth with two rather broad dark bands; the fifth and sixth with three or four dark bands; but all the marks are on the distal half of the tail-feathers, leaving the basal half pure white. In the wood sandpiper the tail-feathers are barred with narrow transverse white bars on a ground colour of greenish black. The axillary plume in the green sandpiper is grayish black, with narrow angular white bars; in the wood sandpiper it is white, faintly marked with transverse dusky bars. There is another point also in which these birds differ, and which appears to have been hitherto overlooked. In the wood sandpiper the shaft of the first quill-feather is white, the remaining shafts dusky; whereas in the green sandpiper the shafts of all the quill-feathers are dusky.

Little Stint and Temminck's Stint.—Neither Temminck's stint nor the little stint can be considered as anywhere common in Great Britain, neither of them remaining here to breed, and being only found accidentally at the usual periods of migration in spring and autumn. It is probably on this account that so little is known of their habits, and many persons cannot even distinguish them. Temminck's stint may be regarded as a miniature common sandpiper, exhibiting a more uniform colour throughout, and having light-coloured legs; while the little stint, like a miniature dunlin, displays a more mottled and varied plumage and has black legs. Nor need the parallel be confined to the plumage only, for as far as our experience goes, Temminck's stint, like the common sandpiper, affects the soft mud around inland pools and marshes, while the little stint, like the dunlin, prefers the sand and shingle of the sea-shore. The chief distinguishing characters of the two species may be briefly set forth as follows:—

TEMMINCK'S STINT.

Colour more uniform.

Tarsus light brown, short and slender.

LITTLE STINT.

Colour more varied.

Tarsus black, longer and stouter.

Wings: first quill-feather with white shaft; all the other feathers with dusky shafts.

Tertial feathers reach to very near the end of primaries.

Tail: three outer feathers on each side almost white; the first outside white, with a faint dusky spot on the outer web; the second white, with a narrow dusky streak on outer web; the third white, with broad dusky streak on outer web.

Wings: all the quill-feathers with white shafts.

Tertial feathers do not reach within a quarter of an inch of end of primaries.

Tail: three outer feathers on each side all pale gray: no white.

Although Temminck's stint assumes a more varied plumage in summer and the little stint a more uniform colour in winter, the difference in the wing and tail-feathers, as pointed out above, will be at all times a sufficient guide in determining the species.

Little Crake and Baillon's Crake.—Pass we now to the crakes. The little crake in general colouring approaches the water rail, while Baillon's crake more nearly resembles the spotted crake. Bearing this in mind we may determine the species of either of these little rarities without the necessity of a reference or comparison. Yarrell says that the little crake exhibits but a few white marks on the centre of the back, and sometimes on the scapulars, but never on the wing-coverts; in Baillon's crake, on the contrary, these white marks are very numerous, occupying several distinct situations, namely, the central space on the back, the scapulars, wing-coverts and tertial feathers on both sides. The colour of the bill is the same in both species, being pale green and red at the base; so also is that of the eye, crimson-red. The colour of the legs, however, differs in each, those of the little crake being light green, and those of Baillon's crake being flesh-colour.

Gray Geese.—The following table will suggest the readiest means of distinguishing the four species of British gray geese:—

SPECIES.	BILL.	LEGS.
Graylag Goose . . .	Flesh-colour; nail white.	Flesh-colour.
Bean Goose . . .	Orange; nail, edges and base black.	Orange.
Pinkfooted Goose . .	Pink; nail and base black.	Pink, tinged with vermillion, like Egyptian Goose.
Whitefronted Goose .	Pink; nail and base white; forehead white.	Orange.

Swans.—A wild swan may always be known from a tame one by its having the colours of the bill reversed; that is to say, a wild swan

always has the base of the bill yellow and the extremity black. In the domestic bird it is just the reverse.

Common and Arctic Terns.—The habits of both *Sterna Hirundo* and *S. arctica* are very similar, and their general resemblance such that, except by the note (which is difficult to imitate), it is impossible to distinguish them on the wing at any distance. When endeavouring to point the distinctive characters of these two species, many authors give measurements of the wing, tail and total length; but, from an examination of a great number of specimens of each, it appears that individuals of the same species vary so much, according to sex and age, that these measurements are practically of but little use. We are also told that the arctic tern is always much darker beneath than its congener: generally speaking this is so, but we have seen some common terns, shot in June, when in full summer plumage, which were quite as dark as many arctic terns which we have examined. Again, many naturalists say that while the bill of the common tern is red, with a black tip, that of the arctic tern is invariably red throughout its whole length; but this is only the case with fully adult birds. The young of both species at first have the bill of a dark horn-colour, orange-red at the base. As the bird gets older the darker colour recedes further from the base, while the red becomes brighter, and finally only the tip of the bill remains black in the common tern, while in the arctic species the black colour disappears entirely. The only features which really appear to be constant, and may consequently be considered indicative of the species, are the comparative length of bill and tarsus, and the length of the closed wings in proportion to the tail. In a few words, the differences may be shortly stated as follows:—

COMMON TERN.

Bill longer and stouter, average = 2 inches; red, black at tip.

Tarsus longer, average $8\frac{1}{2}$ lines.

Tail equal to, or (generally) shorter than closed wings.

Under parts whiter.

Black cap, extends perhaps a little further and is more pointed in form.

ARCTIC TERN.

Bill shorter and more slender, average = 1 inch 6 lines; in old bird red throughout.

Tarsus shorter, average $6\frac{1}{2}$ lines.

Tail longer than closed wings.

Under parts grayer.

Black cap rather shorter and more rounded in form.

This last statement requires confirmation.

J. EDMUND HARTING.

Kingsbury, Middlesex, September, 1867.

Notes on the Folk-lore of Zoology. By EDWARD R. ALSTON, Esq.

(Continued from Zool. S. S. 924.)

Squirrel.—In the Northern myths the squirrel bears the character of a tale-bearer; for ever and ever he runs up and down the sacred ash-tree Ygdrasil which supports the world, spreading discord between the eagle seated on the boughs and the great snake Midgardsormen which lies in the abyss beneath. On account of its colour it was held sacred to Thor, and Simrock tells us that according to an ancient custom the squirrel is hunted by the German peasants at Easter, in England at Christmas, which he attributed to "Christian hatred to the darlings of the heathen gods" (*Handb. der Deut. Myth.*, p. 554).

Black Rat.—Concerning this species Verstigan, in his curious 'Restitvtion of Decayed Intelligence' (London, 1634), relates the following "most true and marvelous strange accident," as he terms it:—"There came into the towne of Hamel, in the country of Brunswicke, an old kind of companion, who, for the fantastickall coate which he wore being wrought with sundry colours, was called the pide (*pied*) piper, for a piper he was, besides his other qualities. This fellow, forsooth, offered the townsmen for a certaine somme of money to rid the towne of all the rats that were in it (for at that time the burgers were with that vermine greatly annoyed). The accord in fine being made; the pide piper with a shrill pipe went piping thorow the streets, and forthwith the rats came all running out of the houses in great numbers after him; all which hee led into the river of Weaser and therein drowned them." But in the sequel it appears that the burghers refused to implement their bargain, whereupon the "pide piper" spirited away a hundred and thirty of their children, leading them into a hole in a hill-side, and neither he nor they were ever seen again. Honest old Verstigan relates this tale of "negromancy" with all faith, and tells us in conclusion that "this great wonder hapned on the 22nd day of Iuly in the yeere of our Lord 1376."

Alpine Marmot.—Many extraordinary stories have been told regarding this curious rodent, which some of the medieval naturalists held to be a cross between the badger and the squirrel. The Swiss peasants believe that the marmot's fat eases the pains of childbirth and cures colic and chest complaints, while its fresh and warm skin is a specific for rheumatism. Strange tales, too, are told of the marmot's autumnal harvest, how one lies on its back and holds up its legs, thus converting

itself into a hay-waggon, which is loaded by the rest and then dragged by the tail to their dwelling! It is true, says F. von Tschudi, that marmots often have the hair rubbed from their backs, which, although only caused by the narrowness of their burrows, may have given rise to this story. During their winter sleep they are said by some of the peasants to waken at every new moon, and others merely to turn over and lie on the opposite side (*Tschudi, 'Thierleben der Alpenwelt,'* p. 532).

Lemming.—The periodical invasion of Scandinavia by vast swarms of these destructive little beasts, coming no one knows whence and wandering no one knows whither, has given rise to the common belief of the Norse peasants that the lemmings fall from the clouds in rain, and strange tales are told of their even descending on the decks of vessels at sea. In old days, according to Bishop Pontoppidan, an annual feast was held at Bergen, called the "Mouse-festival," when grave rites were performed to avert this plague. The peasants believe that cattle will refuse to eat grass that has been touched by a lemming, and that the latter are pursued and devoured by the reindeer.

Mole-rat.—There is said to be a strange superstition in Russia regarding the sleper or mole-rat, namely, that if a man has the fortitude to catch one in his naked hand and squeeze it to death in spite of its teeth, he will be rewarded for his courage by being endowed with the power of curing goître by his touch (*Wood, 'Popular Natural History.'*)

Hare.—A misunderstood peculiarity in the anatomy of the hare seems to have been the origin of the old belief that this animal annually changes its sex. Isaac Walton, in the "Compleat Angler," makes Piscator say:—"There are many country people that believe that hares change sexes every year, and there be very many learned men think so too, for in their dissecting them they find many reasons to incline them to that belief." It was an evil omen to meet a hare when starting on a journey. "It is unlucky to travel," says the worthy Thane of Coningsburgh in 'Ivanhoe,' "when your path is crossed by a monk, a hare, or a howling dog, until you have eaten your next meal." The hare was a common form for witches to assume. Isabel Gowdie, who was convicted of witchcraft in Nairnshire in 1662, confessed to this practice (*Chambers's 'Domestic Annals of Scotland,'* vol. ii., p. 287), and informs us that the necessary charm was to repeat the words—

" I sall go intill a hare,
 With sorrow sich and mickle care;
 And I sall go in the devil's name,
 Aye, when I come home again."

When in this form, she said, " the dogs will sometimes get bits of us, but will not get us killed: when we turn to our own shape we will have the bits and rives (tears) and scarts (scratches) on our bodies." When the witch wished to return to her human form she repeated the words—

" Hare, hare, God send thee care!
 I am in a hare's likeness now,
 But I sall be a woman even now;
 Hare, hare, God send thee care!"

Elk.—The elk or moose is or was believed, both by the Scandinavians and the North-American Indians, to be subject to frequent fits of epilepsy, or cramp, as others say; and its hoofs were considered (on the homœopathic system) to be an infallible specific for these diseases. The Indians say that when the moose feels these fits coming on it bleeds itself by cutting one of its ears with the sharp edges of its fore hoofs.

Red Deer.—The wounds caused by the antler of the stag at bay were considered very dangerous, as witness the old rhyme:—

" If thou be hurt by horn of stag
 It brings thee to thy bier,
 But leeche's skill shall boar's hurt heal,
 Therefor thou needst not fear."

It was also believed that a wounded deer sought medicinal plants to cure his wounds: to this Marlowe alludes in his play of 'Edward II.':

" The forest deer being struck
 Runs to an herb that closes up the wounds,
 But when th' imperial lion's flesh is gored
 He rends and tears it with his wrathful paw."

In the mythology of the Teutonic races the stag, like the wild boar, was an emblem of the sun: he also appears in a variety of legends as sent from another world to decoy away those who follow him. Thus in Scottish story Thomas the Rhymer sees

" A hart and hind pace side by side,
 As white as snow on Fairnalie;"

he follows them to Fairyland, and is seen no more by mortal eye: other similar legends are quoted by Simrock in the work I have so often alluded to.

Wild Boar.—In the Scandinavian myths the wild boar is the emblem or personification of the sun, an honour which, as already noticed, it shares with the stag. Hence the boar is also an emblem of fertility, and even yet the Germans say, when the ripening corn waves in the breeze, "the boar passes through it." Boar's flesh was a favourite dainty with most of the northern nations, and was assigned to the gods and heroes as their food in Walhalla. The memory of the "swine" as a Scottish "beast of venery" lives in the lines—

" Bilhope-braes for bucks and raes,
Carit-rigs for swine,
And tarras for a gude bull-trout,
If it be ta'en in time."

This is quoted by Sir Walter Scott, as "an old rhyme which celebrates the places in Liddesdale remarkable for game; the bucks and roes as well as the swine are now extinct, but the good bull-trout is still famous." The very common belief that pigs in swimming cut their own throats with their sharp fore-hoofs is rather mysterious in its origin; in real life the pig is no bad swimmer.

EDWARD R. ALSTON.

Stockbriggs, Lesmahagow, N. B.,

October, 1867.

(To be continued.)

Errata.—At Zool. S. S. 883, line 2nd, for "squaring" read "squeezing"; same page, second line from the bottom, for "scalets" read "scalds." S. S. 924, lines 6th and 10th, for "one" read "ane."—E. R. A.

Ascension: Wide-awake Fair and the Turtle Ponds.

By Dr. C. COLLINGWOOD, F.L.S.

IN this communication I shall only refer to the barren, lava-strewed part of this island, which has its special points of interest quite apart from the verdure-clad heights of Green Mountain, an account of which latter, from the pen of Mr. T. Baines, appeared in the 'Leisure Hour' for September.

The aspect of the island from the sea is not a little remarkable, owing to its peculiar red colour and desolate aspect. Sloping rocks of

the roughest lava, broken here and there by sandy bays, stretch along the shore, and the island consists of an irregular series of conical hills of various heights, among which towers Green Mountain, 2800 feet high, whose summit is crowned with trees and green fields, and offers a strong contrast to the other hills, which are reddish or brown, according to the colour of the ashes and cinders of which they are composed. The settlement of George Town is entirely naval in its character, being formed of a number of departmental officers and of marines, who are all borne on the books of H.M.S. "Flora," 40 guns, which lies off this place, and whose captain is styled the "Captain of the Island." Everything is conducted with the strictest reference to naval discipline, and the island is nothing more nor less than a ship ashore. The landing-place is very indifferent, mere steps cut in the rock, and therefore entirely inaccessible in bad weather. It is well known that the great waves of the Atlantic often set in upon the rock in the form of *rollers*, even in fine weather, and it can never be predicted when they may make their appearance; but whenever they do so all communication between the ships and the shore is cut off, except by signal. It is one of the duties of the master of the "Flora" to direct a flag to be hoisted on the signal-hill when this state of things occurs, and that is pretty frequently.

As our stay was to be limited to one day I was thankful that the weather was calm and the sea permitted us to land, and having done so I bent my steps in the direction of South-West Bay, with the intention of visiting "Wide-awake Fair," and at the same time exploring some of the geological features of this remarkable island. The whole of Ascension is an erupted mass, the antiquity of which can only be judged of by the worn condition of its surface, but it is entirely the product of a once-active but long-since extinct volcano. Green Mountain, the culminating point, is probably the parent cone, around which a great number of secondary cones and craters are clustered, the rough trochytic lavas of which run sloping to the beach round the greater part of the island.

One or two tolerable roads have been formed, which greatly save the labour of walking in a country where the surface of the ground is heaped with rough and sharp-pointed cinders, which look like the product of a myriad furnaces, and to which the "black country" of Staffordshire is a trifle. From these arise conical hills of a reddish colour, covered with fine ashes, which crackle under the feet, and from out of which peep the rounded overhanging ledges formed by

molten lava. Down these hills streams of water have poured during the brief and uncertain wet season, forming water-courses which run between the rounded knolls, which look like *roches moutonnées* at the base, and intersect the lava-fields down to the beach. Other hills are hollow and crateriform, the sides formed of loose masses of slag or clinker of various sizes. Up one of these I clambered, and found the interior deep and cup-shaped, but incomplete or one-sided, the bottom being a small level deposit of mud and sand, produced by the washings of the cinders in wet weather: among these cinders I found several fragments of exploded volcanic bombs, such as are described and figured by Mr. Darwin in his notice of the island.

From this elevation the view was most striking: a deep and broad rocky valley in the fore ground, covered with screaming sea-fowl, beyond which arose an irregular series of naked and desolate conical hills piled one above another in chaotic confusion, but surmounted by the verdant and fertile heights of Green Mountain, upon which may be descried trees, meadows and pastures, like the delectable mountains seen afar off by the pilgrims.

It must not be supposed, however, that the surface of the island is absolutely without vegetation. The cinders in many places are incrustated with white and gray lichens (*Parmelia* and *Roscella*), and I also observed a deep green incrusting lichen on the sea-shore. Many spots also, in the water-courses, are quite cheerful with patches of bright green, and several flowers spring up here and there which have escaped from the gardens on Green Mountain. I was informed that some person had been in the habit of scattering seeds over various parts of the island. I noticed two species of grasses, a *Sonchus*, an *Aster* with scented leaves, &c. The most common plants, however, were the castor-oil (*Ricinus*), a very handsome yellow poppy with prickly white-veined leaves, and a large-flowered plant which is known on the island as the Madagascar rose, and is reported to have been imported from thence.

Among this vegetation a few insects occur: large red-winged locusts fly about among the rocks, and a fat black cricket is common—I also saw a pale brown one, but could not catch it. A little moth (a species of *Pyramidella*), very prettily marked, is common wherever the succulent plant above mentioned occurred, and flew about among the rocks, settling for a moment and then taking wing again, unless it happened to get in the shelter of a crevice in the honeycomb of a cinder, where it seemed to consider itself safe. A somewhat larger pale brown moth

I also noticed from time to time, but it flew rapidly and was aided by a strong breeze which was blowing, and appears usually to be blowing, over the island. Besides these insects I saw carrion flies upon the rocks, a hunting spider and numerous small carrion beetles in situations to be presently mentioned.

The lava and cinders in the neighbourhood of South-West Bay are whitened here and there by the dung of sea-birds, but the extraordinary scene of the breeding-place of the terns, or wide-awakes, and called "Wide-awake Fair," is a long valley situated about half a mile from the sea in the south-eastern part of the island. The approach to this valley is indicated by an overpowering odour arising from their deposits, which, however, do not accumulate as in some guano islands. Seen from the hill above, this valley looks as though a light fall of snow had partially whitened it, but in no place was there any appreciable depth of deposit. The birds themselves are in immense numbers, hovering over the valley, screaming and making various discordant noises, which, heard at a distance, sound like the murmur of a vast crowd. They are elegant and graceful birds, glossy black above and snowy white beneath, with white foreheads, straight compressed beaks and long forked tails: they measured two feet six inches from tip to tip of the wings, which are long and pointed. As soon as a visitor makes his appearance among the nests, numberless birds arise screaming in the air, and form a complete canopy over his head; some, bolder than the rest, fly so close that it is the easiest thing in the world to knock them down with a stick, and it is even necessary to strike at them occasionally and give them a slight tap to admonish them not to use their bills against one's face. Meantime crowds of little ones, of all ages and sizes, some covered with a gray down and others almost fully fledged, run hither and thither, tumbling over the stones in their hurry to escape from the intruder. Here a chick has but just broken the egg, and the parent bird is nestling over it, and does not leave it until you arrive so close that you could stretch out your arm and take it up. Eggs lay scattered all over the place, deposited in little hollows in the sand, about as large as the palm of the hand, which is all the nest which the "wide-awake" considers necessary; and in many of the rocky crevices in which these eggs were deposited the skeleton or half-decayed body of an adult bird, but more frequently a young one, upon which a number of carrion beetles were busy, showed where it had died and rotted beside the nest.

At the particular season at which I visited this singular spot, the birds were in every stage of growth, from the newly-hatched chick to the bird with first year's plumage, flying with the rest. Eggs also were abundant, never more than one in the same nest; and although the parent bird was in some cases sitting upon fresh or half-hatched ones, in a great many instances the eggs were cracked, and either rotten or dried up. Many that I picked up felt light and empty, although scarcely injured, and others which I broke contained carrion beetles or their grubs. The eggs were very variously marked, and had not a little variety of form: the common appearance of them was round at one end and pointed at the other, about the size of a plover's egg, and in colour a whitish ground, blotched with faint purplish and distinct rich brown blotches, which often formed a ring round the larger end; but some which I noticed were long and pointed at both ends, and without blotches, but speckled with small purplish and brown spots. There was no other kind of bird, however, visible in the whole valley.

It would be easy for any person in the valley to fill a sack with adult birds, although he possessed no other weapon than a stick, and too many of the visitors are not content without maiming a number in mere wantonness; so that the poor birds can hardly be said to dwell unmolested; nevertheless, as long at least as they have nests and eggs to look after, they evince what I should characterize as boldness rather than tameness. I should consider the Solan geese on the Bass Rock as tamer than the "wide-awakes" of Ascension.

Before leaving the island I visited the turtle-ponds, where these animals are kept in store; for Ascension, barren and desolate as it is, has yet one product in which it is not exceeded by any part of the world, *viz.* turtle. The sandy bays of the island are visited by great numbers of these unwieldy and valuable reptiles, which, entirely marine and oceanic in their habits, visit the shore solely for the deposition of their eggs, and are secured on these occasions by being cut off from their retreat to the sea and turned over on their backs, are then conveyed at leisure to the reservoirs provided for their reception. The sandy shore adjoining George Town, I was informed, is no longer so rich and profitable a beach as it once was, the reason probably being that turtle, like birds of passage, return again and again to the same spot to deposit their eggs, and on this beach as being most accessible, the greatest number of turtle have been turned, so that but few visit it at present. No one but the government authorities is

allowed to interfere with this source of emolument, and the turtle form a staple article of food upon the island, being served out twice a week, but the animals are sent to persons in authority in England, and are supplied to merchant ships at the rate of £2 10s. each. The season was just over when I visited Ascension, and the turtle-ponds contained eighty-two animals. These ponds, two in number, were on the sea-beach, each fifty or sixty feet square, and three or four feet deep, and the sea is allowed to wash into them by two grated channels. All the turtle, however, were in one of these enclosures, and could be seen swimming about, ever and anon raising their stupid-looking heads above the surface and snorting out a jet of water. They seemed to crowd together in one corner, where each wave as it broke sent a rush of fresh sea-water into the pond. Numerous small fishes and crabs swam about them unmolested; but on inquiry I learned that they are never fed, although they are not unfrequently kept in the reservoirs for a year or more after capture. They were very variously marked, some with large black spots, others with indistinct radiating streaks upon the plate, and several had a large white patch in the middle of the carapace. One in particular was conspicuous from his very peculiar form. Instead of being gently rounded as usual, the carapace was high and terminated in a ridge, which, as he swam about, was elevated fully six inches above the water—a conformation which it appears occasionally, although rarely, occurs. While I was watching them, preparations were made for getting one out of the pond. A negro walked into the midst of them, and having selected one, he tied a cord round one of the anterior fins, by which it was pulled by several other negroes out of the pond by main force, and laid upon its back on a small four-wheeled carriage prepared for it, in which helpless position it was dragged away without a struggle.

On the lava rock adjacent, where the waves break with great violence, great numbers of beautifully coloured crabs (*Grapsi*) ran actively about; the pools abounded with large purple-spined Echini, esconced in round hollows, and beautiful azure, and banded rock fish, but the only seaweed I observed was the cosmopolitan peacock's-tail (*Padina pavonia*). My exploration, however, was necessarily brief, as it was necessary forthwith to rejoin the ship.

C. COLLINGWOOD.

14, Gloucester Place, Greenwich,
October 9, 1867.

Ornithological Notes from the Isle of Wight.

By Captain HADFIELD.

(Continued from Zool. S. S. 910.)

AUGUST, 1867.

Martin.—The scarcity of martins this season has been remarked on, and had my observations been confined to this neighbourhood I should have been inclined to say the same, as they are decidedly less numerous than usual, but at Shanklin they are most abundant, and in July were swarming about the sea-cliffs: there were young on the wing by the end of the month, and so numerous that they were knocked down with stones.

Spotted Flycatcher.—Numbers seen of late in Appuldurcombe Park, where there are still some good-sized trees. This species is far more abundant in the wooded uplands north of the downs than in the Undercliff, where the foliage is comparatively dense. Shrike-like they frequent the bare or solitary trees, though not so often seen on the topmost branches.

Swallow.—Though few breed in the Undercliff, many pairs nest in the neighbouring inland villages.

Partridge.—Towards the end of August I saw an unusually large covey of partridges at Niton: having taken the shooting on a neighbouring farm, I am told that it contains twenty-nine birds. That a partridge could cover that number of eggs seems impossible; but I am assured that the birds have kept together for weeks, so if originally two coveys they must have united early in the summer, which I never knew them do, though they will gather together in the autumn.

SEPTEMBER.

Whimbrel.—This species has reappeared, one having been shot on our rocky shore on the 12th. Being here rather uncommon, it was taken for the curlew.

Wheatear.—Numbers observed of late about the newly-ploughed lands, but they are mostly birds of the season or females.

Night Hawk.—Has been met with occasionally on the Downs, and is doubtless about to migrate.

Turtle Dove.—More numerous than I ever remember to have seen them, though mostly frequenting the uplands, and, unlike the wood-pigeon, far from villages and dwellings.

Landrail.—Frequently met with, and I believe them to be very abundant this season.

Wagtail.—Both pied and white wagtails frequently observed flocking together, particularly towards nightfall.

Partridge.—Some of the late broods are remarkably small; a partridge shot on the 16th of September weighed but eight ounces, and another was seen still more diminutive. Owing to the cold and late spring, the thermometer little above the freezing point during the first three weeks of March, the pairing and breeding must have been greatly retarded and impeded, though the Rev. F. O. Morris, in his letter to the 'Times' of the 23rd of September, says, "I think the severe weather we had in the winter and in May had nothing whatever to do with the present scarcity of partridges, for I never saw a partridge that appeared to suffer from the hard weather." But I think him mistaken; for instance, in a previous communication (S. S. 740), I have remarked, "Though a strong and hardy bird, the severe winter is beginning to tell on them; and they now feed chiefly, if not wholly, on the grass and turnip-leaves that are still above the snow. The gizzard of one contained but a small quantity of coarse grass." This partridge, and others shot while the snow was on the ground, was in poor condition, and I cannot but think the severe weather the cause. That a snow-storm tames the partridge, as well as most other birds, the poulterer's shops and stalls but too clearly prove: besides, who has not seen coveys huddled together on the snow, and not taking wing till one is close upon them, presenting a sure and ready mark to those who pursue them on these occasions; and doubtless some fall victims to birds of prey. Others, there is reason to believe, are so weakened as not to pair readily, or pairing fail in fecundity, as is the case with animals when out of condition; and the number of old birds met with this season, though by no means "the preponderating stock," leads me to think they may not have been in a condition to breed. The comparative tameness of the partridge in September, so that "he may be almost trod on in the early and hot part of the season," is owing not so much to the heat of the weather as to its weakness of wing, and being as yet little disturbed or molested. That "he should rise at sight of you a couple of hundred yards off," late in the season, is natural enough, for being then strong on the wing and wary he gets out of harm's way, unless frost and snow deprive him of the power of doing so. Unlike the partridge—*i.e.* ruffed grouse—of Canada, he has not the faculty of burrowing beneath the snow in

quest of food; his shorter, and less webbed or membranous toes unfitting him for working through or under the snow.

Swallow.—28th. Great numbers seen in the neighbourhood of Sandown; they are now flocking together.

Martin, &c.—30th. Numerous martins and some swallows, mostly birds of the season in immature plumage, were observed hawking about the trees near the cliffs. Though the days are warm (thermometer between 55 and 60° at 9 A.M.) there has of late been white frost at night, and I believe the migration has commenced.

Willow Wren.—Observed all through the month.

Wild Duck.—Has been already seen on our coast.

HENRY HADFIELD.

Ventnor, Isle of Wight, October 7, 1867.

Rats eating Grapes.—A circumstance novel to me, and perhaps to some readers of the 'Zoologist,' occurred here within the last few days. The gardener came to me on Friday last, and said that something had been at the grapes. I went up to the green-house with him, and it was very evident that something had been at them indeed, for the bunches in several places were almost half destroyed, some grapes being half eaten, others skinned but not eaten, and others nipped off and lying on the ground. We both suspected rats; but I thought perhaps a squirrel might have got in early in the morning (for they are numerous about here) and committed the act. The gardener stuffed a hole which he observed at the place where the vine enters the green-house with grass: next morning the same scene presented itself, if not worse; he then stopped the hole with furze-bushes, but to no purpose. We then set ten traps, one to each vine, and next morning we had four large brown rats in them, which circumstance clearly proved that they were the culprits. This year they also attacked our cherries, nipping them off by the stalk, but leaving them otherwise untouched, for they did not seem to eat any of them.—*R. M. Barrington; Fassaroe, Bray, County Wicklow, October 15, 1867.*

Varieties of Birds.—Beside the whitewinged partridge recorded in the 'Zoologist' (S. S. 950), the following varieties are known to have occurred at Cobham:—

1. Sparrowhawk. White, slightly mottled with brown.
2. A brood of white blackbirds, four or five in number, beside many pied varieties.

3. A pure white martin.

4. A white turtle dove.

5. A buff-coloured partridge.—*Clifton; Eton College, Bucks.*

Notes on Newman's 'Birdsnesting.'—

1. Golden Eagle (Zool. 7394). Still breeds in Scotland, and more numerous than is generally supposed. Mr. E. C. Buxton (Zool. 7463) mentions the fact of the

golden eagle having bred in the west of Ross-shire between the years 1844 and 1847. This year when in Sutherland, in August, I saw a young male bird which had been taken, in all probability, from the same eyrie which Mr. Buxton alludes to. There is only one locality on the shootings of Loch Ailsh.

2. Osprey (Zool. 7395). I believe that there is now only one locality in Scotland where the osprey breeds: it has long since deserted those localities mentioned by Mr. Newman, viz. Loch Lomond, Loch Awe, &c.

3. Goshawk (Zool. 7395). The goshawk, if it ever bred in Orkney, must have placed its nest on the cliffs, as there are no "tall fir trees," to my knowledge, in Orkney. Even furze will not grow healthily in Orkney.

4. Kite (Zool. 7395). Now, I fancy, quite extinct in Scotland as a breeding species. I have one egg in my collection, taken in Argyleshire, in 1862, which I received from Dr. Dewar.

5. Tawny Owl (Zool. 7397). Frequently breeds in hollow trees. I have known more than one nest thus placed, and have eggs taken on two different occasions from a like situation in Craig Lochart Woods near Edinburgh. I also know of a pair of tawny owls breeding in a slit or fissure of a rock near here.

6. Sedge Warbler (Zool. 7441). Mr. Newman says of this bird, "In fact, it seldom frequents reeds." My experience of this bird has always been quite the contrary. The nest is never suspended by the reeds, it is true, but the birds themselves I have constantly observed sitting on the long bending reeds as they waved in the wind.

7. Siskin (Zool. 7474). The siskin, as far as I have been able to observe, generally places its nest at a considerable height above the ground. I have seen the nest fully forty feet from the ground (Zool. S. S. 893), and I heard of four nests this year in Kincardineshire, all of which were similarly placed. The siskin breeds in Aberdeenshire, East Sutherland, and many other localities in Scotland. It is a most difficult matter to secure the eggs, even after the nest is discovered, as the latter is almost always placed at the very extremity of the branch of a black fir tree.

8. Twite (Zool. 7475). A favourite position for the twite's nest is amongst the white grass growing on rocks on the sea-shore, and in similar situations as those chosen by the rock pipit.

9. Heron (Zool. 7480). The heron breeds in small numbers on the cliffs west of Stromness, in Orkney. Also breeds in considerable numbers on low alder-trees on Loch Ailsh, in Ross-shire. Eggs pale green.

10. Dunlin (Zool. 7481). The dunlin breeds on the shores and islands of inland lochs in Sutherland, Stirlingshire and other localities.

11. Redthroated Diver (Zool. 7496). Breeds plentifully in Sutherland, as well as in Hoy, Orkney, as does the blackthroated diver.

12. Ringed Guillemot (Zool. 7496). Breeds at Handa, Hoy Head, and several other localities.

13. Black Guillemot (Zool. 7497). Is not, I believe, now present in the Firth of Forth during the breeding-season.

14. Shag (Zool. 7498). I have myself taken the shag's eggs at the Lizard, Cornwall.

15. Common Gull (Zool. 7500). Does the common gull breed on cliffs at St. Abbs Head? If so is it not uncommon? Any I have ever found have been upon

level ground on islands or shores of inland and sea lochs, and often placed deep amongst long white grass.—*John A. Harvie Brown; Dunipace House, Falkirk, September 28, 1867.*

Errata.—In my "Collected Observations on the Birds of Stirlingshire," in the September number of the 'Zoologist,' page 884 and elsewhere, for "Campsil" read "Campsie." Page 893, line 26, for "Inarter" read "Quarter." Page 896, line 29, for "craw" read "cran." Page 904, line 29, for "the species" read "the next species." I am very sorry these errors have occurred, as they are entirely my own fault, in not having written some of my letters distinctly enough.—*J. A. Harvie Brown.*

Further Note on the Buzzards seen in Kent.—A few days back I sent you an account of my seeing a buzzard here on two occasions, and of two having been seen together. Having satisfied myself that the birds seen were buzzards, I immediately wrote to you without further consideration. On each occasion I observed the bird through a small pair of opera-glasses, at distances of about four hundred and one hundred yards respectively, and I saw that the upper part of the tail was white. I had never seen this in any other hawk, but I was not familiar with buzzards, and did not remember whether the common buzzard had that part white or not; but when I came to examine drawings of that species and the three stuffed specimens here, I found that this white was the distinguishing characteristic of the roughlegged buzzard. To use the words in Gould's 'British Birds,' "the roughlegged buzzard when in the air may be easily distinguished by the white root of the tail." Being now confident of these being roughlegged buzzards I closely examined the under keeper, who has generally seen the birds, and he distinctly and unhesitatingly stated that the upper part of the tail was white, and that he had never seen anything like it before: they came close over his head. He thought they were larger than the common buzzard, and one was much larger than the other. Their flight resembled both that of the heron and of the common hawks. Sometimes they flew low with flapping wings, sometimes soared in circles. I fancy they make long excursions into the country, as sometimes they are not seen for days. If Captain Hadfield or any other naturalist acquainted with buzzards would kindly offer an opinion as to the likelihood of these being the roughlegged species I should be much obliged.—*Clifton; Cobham Hall, September 24, 1867.*

Early Arrival of Fieldfares.—Upon the 25th of September, while in a garden at Aldeburgh, Suffolk, I chanced to look up, and was considerably surprised to see a small flock of fieldfares flying over my head: there were about a dozen in the flock. It had been rather cold weather that week in Suffolk, but nevertheless it is early for this bird to visit us. Two other persons saw them besides myself.—*Alexander Clark-Kennedy; September 27, 1867.*

Late Greenfinch's Nest.—Mr. Clogg mentions a yellowhammer's nest found on the 26th of August. I found a greenfinch's nest, with young ones, in a blackthorn, about that date, certainly in the last week of August.—*Clifton.*

Hawfinches' Nests and Eggs.—Observing in the October number of the 'Zoologist' (S. S. 949) a notice of the hawfinch (*Loxia coccotroaustes*) at Selborne, Hants, I may mention that in Huntingdonshire this species appears to be on the increase; at least it is so in our locality, where we never used to have any, and I have kept a look out on birds for many years. Now we have a regular colony, and I have taken three nests at the same time, all within twenty-five yards of each other. It is of no use to describe

such well-known things; I will, therefore, only mention that they are always upon apple-trees, avoiding pear-trees, which are in proximity. I wish to say a word, however, concerning the eggs, of which my collection contains a series of complete sittings. Among these there are three distinct varieties, two of which are not unusual, but the third I believe to be much so. Two sets of this latter sort, the first taken on the 28th of April, 1865, consist of five; the second on the 11th of May, 1867, six in number, have in both cases a pale bullfinch-blue ground, with small spots, instead of the usual streaks, and resemble the eggs of the waxwing (*Bombycilla garrula*) in size and other particulars so closely that they might easily be passed off for them. I believe the common counterfeit for *B. garrula* is the egg of the cedar bird (*Ampelis cedrorum*), but on placing one of these beside the former, the difference in size is very considerable. I have had one or two opportunities of examining the most extensive series of waxwings' eggs known, and this particular variety of hawfinch closely resembles them. I think, therefore, it is well to call the attention of collectors to the fact.—*George Dawson Rowley; 5, Peel Terrace, Brighton, October 7, 1867.*

A strange Trap for Swallows.—One day last August a swallow was seen to be caught by the head in the interstices of one of the gilded weathercocks which surmount the towers of this house. Sympathizing crowds of swallows flocked to see it, and in a short time two more were caught in the same way.—*Clifton; Eton College, October 8, 1867.*

Martins and Wagtails.—In reading Mr. Stevenson's excellent work on Norfolk Birds, I was pleased to see that he records what I have often observed before, but had never seen mentioned in any work, *viz.* the strange antipathy of the pied wagtail to the house martin. Fights between these birds are seen every day here, the wagtail chasing the martin with incredible swiftness. Most people think both are house martins when they see a fight of this kind. The swallow and the flycatcher are also on "cat and dog" terms generally, the swallows bullying the young flycatchers while sitting and waiting for the parent birds to feed them.—*Id.*

Swallows and Martins picked up dead at Aldeburgh.—On account of the frost on Friday night, the 4th of October, swallows and martins were found dead in the streets of this town. On Saturday there was snow and hail.—*E. C. Moor; Aldeburgh, Suffolk.*

Late Swift.—I was told by a friend of mine, Mr. W. Basham, that he saw a common swift flying over the Thorpe Merc, near Aldeburgh, Suffolk, upon the morning of the 24th of September.—*A. Clark-Kennedy; 14, Prince's Gardens, W., September 26, 1867.*

Number of Eggs laid by the Swift.—With reference to the paragraph under the above heading in the 'Zoologist' for September (S. S. 915) I beg to state, for the information of those interested in the subject, that in the middle of June last I took two swift's nests in the church here, one containing two fresh eggs, and the other three eggs hard set upon. This shows that the eggs of the swift are not invariably limited to two. As to the bird never alighting, I have every reason to think that the statement of Mr. Parnell is correct. There are at least ten pairs of these interesting birds which breed in the church here every year, and though I have watched them closely for many seasons I have never yet seen one of them alight, further than clinging to the eaves of the church immediately before entering the nest.—*Marcus Richardson; Portrush, County Antrim, September 17, 1867.*

Hybrid Black Grouse on Bodmin Moors.—On several occasions I have heard of and received specimens of hybrids between the pheasant and gray hen, from the extensive moors between the Cheese Wring and Jamaica Inn, on the Bodmin Moors. It is singular that on these occasions no instance of the black cock has been noticed. My nephew writes me word that, on Tuesday, the 24th of September, his setters came to a stand at a secluded marsh in these moors, and up got a brood of apparently black game: the old gray hen was very remarkable. He shot and sent me a young cock in entire moult, with patches of black, the tarsi *partially feathered*. I have recommended him to let the brood get full feathered, when no doubt, as on former occasions, the tail will appear partially elongated. I have the one referred to by Yarrell as having been in the possession of my father, Dr. Rodd. The specimen referred to as in the possession of Sir W. Call was killed at the same time.—*Edward Hearle Rodd; Penzance, September 26, 1867.*

A Sagacious Hen.—A correspondent writes: On Wednesday a hen was taken from Nantmole to Ynisnewdn, Swansea Valley, in a basket (with a bag over the basket) in the bottom of a cart, the distance between the two places being five miles. On Saturday morning the hen was again seen quietly feeding in Nantmole Farm-yard, having apparently been displeased with her new quarters, and come home to roost."—*From the 'Bristol Mercury,' October 5, 1867.*

Pigmy Curlew at Aldeburgh.—Another pigmy curlew has been shot upon the mere last week, and I saw a fourth, which was shot at, a few days ago, all four specimens occurring within a few days.—*A. Clark-Kennedy.*

Extraordinary Flock of Wood Sandpipers at Rainham, Kent.—On the 26th of July last my brother, G. E. Power, fell in with a large party of wood sandpipers on some marshes near Rainham, Kent, a sudden change of wind on the previous night, *viz.*, from S.W. to N. and N.E., with a deluging rain, having apparently driven these birds out of their usual line of migration. At first he put up but three, one of which he shot, but at the report others rose on all sides, and joining in one large flock flew round and round at some height, continually whistling; their number he estimated at from eighty to one hundred. They soon pitched again, and, dividing into small parties, flew round the ditches like dunlins: he followed them up, and without any difficulty succeeded in obtaining four more; the greater part then crossed a creek to a neighbouring marsh, although many still remained where he first found them. Next morning he only met with one, and after that only occasionally came across a few, seeing the last on the 6th of September. This flock appears to have consisted principally of young birds, but of those which he obtained one was plainly an old one, and had not entirely lost the breeding-plumage, as the worn tail and scapular feathers showed, and proved to be a female. In this specimen the quills are brownish, very different from the blackish brown of the other birds; the whole plumage, too, is of a dirty brown colour with few spots on the back, and these nearly white, not yellowish as in the other specimens. All these birds were in excellent condition and were loaded with fat. I may mention that we had only twice previously met with this species at Rainham, *viz.*, one seen in July, 1865, and a second which I obtained on the 15th of last July on the same marsh where this large flock appeared.—*F. D. Power; Ladywell, Lewisham, October 2, 1867.*

Little Stint and Little Gull at Leicester.—I have just seen two birds which I believe are of very rare occurrence in this country, namely, the little stint (*Tringa*

pusilla) and the little gull (*Larus minutus*). They were both shot in the Abbey meadow, close to the town of Leicester, in January last, and stuffed by Mr. W. Elkington, of that place, who sold them to Mr. Mansfield, of Birmingham, bird's-eye maker, &c., in whose possession they now are. I have a letter from Mr. Elkington containing the names of the two gentlemen who shot the birds, and describing the Abbey meadow as a very large field of grass land, bounded on one side by the canal, and on the other by the "Old Soar;" and in winter time often overflowed with water.—*Thomas Goatley; 4, Strand, Southampton, September 16, 1867.*

Redthroated Diver netted at Penzance.—This morning, in four fathoms water, I caught, entangled in my net, a speckled diver (the redthroated diver in its first year). The bird is in very good plumage.—*Thomas Cornish; Penzance, October 5, 1867.*

Sabine's Gull at Weston-super-Mare.—I have been told that a specimen of this little fork-tailed gull was shot here about the 14th of September. By the description of it given to me it must have been an adult. The shooter of it did not know its rarity, and unfortunately it was not preserved. This makes the third example of this gull which has been obtained on the Weston sands during the last decade.—*Murray A. Mathew; Weston-super-Mare, October 3, 1867.*

Buffons Skua on the Norfolk Coast.—Two male examples of this rare species were shot on the 4th instant, on the beach at Beeston Regis, and passed into my hands for preservation. The first is an adult bird, the stomach containing several feathers, which, on examination, I found it had plucked from its own breast. The second specimen is an immature bird, in the stomach of which I found a solitary beetle, quite soft from the action of the stomach, so that when touched it fell to pieces. The legs and base of the toes are of a bluish slate: in the adult bird they are dusky black.—*T. E. Gunn; 21, Regent Street, Norwich, October 9, 1867.*

Piebald Variety of the Common Skua.—On the 26th of September I received, for preservation, a specimen of the common skua from Braughlin, near Ware, in Hertfordshire. It was killed by the telegraph-wires near that place. The crown of its head and its throat were mottled with small patches of white feathers.—*Id.*

Storm Petrel in Norfolk.—This uncertain little visitor, after the lapse of several years, has again made its appearance on the Norfolk coast, and apparently in some numbers. I have received as many as three specimens for preservation during the last few days. An adult male was obtained, on the 2nd instant, at Little Fransham, near Dereham; a female, on the 4th, at Beeston Regis, near Cromer; and the third specimen, a male, was picked up dead yesterday (October 8th) on the beach near the last-named place. The first-named was in good plumage; the tips of the wings and tail of the female were apparently slightly worn. All the birds were in very poor condition, and seemingly starved out: a few fragments of insects, some muddy substance and pebbles comprised the entire contents of their stomachs.—*Id.*

Storm Petrel at Cromer.—A storm petrel was picked up on this beach on the 6th instant: it was dead, but quite fresh. The weather has been stormy for several days past.—*T. F. Buxton; Cromer, Norfolk; October 7, 1867.*

Storm Petrel at Aldeburgh.—Six storm petrels were seen flying about near the Orford Lighthouse: two were shot by Mr. Hele, of Aldeburgh, and another by Mr. Greenwood. They are rare birds on this coast, and very seldom indeed shot.—*E. Charles Moor; Aldeburgh, Suffolk, October, 1867.*

Notes of a Naturalist in India. By Major NORGATE.

The White Ant.—This little insect is perhaps the most destructive in the world; its ravages are perfectly marvellous, its numbers countless, and its perseverance undaunted. Unlike the other species of ants, it appears to have no means of offence or defence; it does not sting or bite, and is so tender that a breeze would blow it away and the sun dry it up: it is therefore obliged to make little covered ways of earth, under which it carries on its destructive yet silent work: these tunnels are made of fine earth, mixed with some moisture, perhaps from the animal's own body. Small objects it selects for its food are all covered with this coating of mud, under which it works day and night: trees, beams of houses, boards are generally covered by small tunnels running about like the branches of a tree, joining down to the point from which the insect began its work from the ground. Nearly all the soil of India, unless it is full of salts or sand, appears to be inhabited by the white ant: large trees are destroyed by it; first the bark is eaten off or the roots attacked, then the tree is dug into and tunnelled, some tissues of the woody parts being left, apparently to keep the mass just strong enough to remain together. A piece of wood, or leather, cloth, cotton-cloth, rope, straw, dry grass, even a stick left on the ground, in a few hours will be covered with this mud, and under it thousands of white ants hard at work running up and down their covered ways, some bringing earth from the ground, others eating away the substance, whatever it may be: this is seldom all consumed, some part being always left: the centre of a beam will be eaten all away and the outside shell left, often deceiving the eye as to its soundness. These little demons make no noise whatever, and the only notice given of their presence may be a little earth falling down when the covered ways get too dry. Some idea may be conceived of the damage done by these insects, when it is calculated they cost the Indian Government some £100,000 a year to repair barracks, roofs of houses, bridges, &c., destroyed by them.

There are many stories current in India about the ravages of the white ants which sound rather incredible; for instance, it is said they will eat through a tin box; well, they do not exactly eat through the tin, but they soon cause a hole to come through the bottom of a tin box left incautiously on the ground; they cover the tin with their earthy roads, and either the acid of their bodies or the moisture they use in forming their earth-work rusts and corrodes through. I have

been informed on reliable authority that on one occasion they covered some china-plates and dishes with their earth-works, and that with all the cleaning and rubbing it was impossible to remove the marks left by the edges of their tunnels; it appeared to have affected the glaze of the china: everyone knows that formic acid, made from ants, is very corrosive. They are very fond of books and old papers, and will devour half a book in a couple of days. I have never observed them eating grain or collecting it; in fact, as all their work and proceedings are carried on either in the soil or under their covered ways, it is rather difficult to notice their habits with any degree of accuracy. All the stories about their having working parties, slaves, &c., must be simple conjecture: when the earth is knocked off their work they crawl about, in the utmost confusion, over one another, and if they happen to be on the stem of a tree numbers fall down, and the others retire down below, and soon bring up fresh earth to repair the damage.

The white ant does not affect anything that is subject to movement; thus you will seldom find it attack a door, a gate or the lid of a box, but the door-posts or gate-posts and the bottom of the box are soon eaten. It was supposed that from the vibration caused by the engine going over the wooden sleepers of the railway, these would escape this insect's ravages, but such is not the case; the sleepers of certain kinds of wood are all eaten—the vibration in India is not enough; no doubt with a traffic over them like that of the Great Western they would escape.

This insect throws up large mounds of earth of a cone-like shape, somewhat in appearance like the picture in atlases of the comparative heights of mountains: these cones are all tunnelled through and through with small tunnels, and one or two large shafts, some four inches in diameter, leading from the colony below to the tops of the cones, which are covered over; this earth gets baked so hard by the sun that it is broken through with some trouble. I have seen them in India four feet high, but they are seldom more than a foot or twenty inches high. The nest in a very populous city of the white ant is sometimes four feet in diameter, and filled with stuff like wasps' comb to look at, but made of fine earth and covered outside with some white substance like mould or flour: in one part of this comb is found what is called the "queen ant," which is a maggot with a red head and a white body, sometimes two or even three inches long and the size of a person's finger. I have often dug this out, but never perceived the ants took any care of this "queen of theirs, who is so bloated as to be unable to move; small white ants, about the eighth of an inch long,

are to be seen, but the other larger ants seem to take no notice of them. I have never yet found any eggs in a nest. It is said the only way of getting rid of these pests is to take away their queen; on one occasion, where a very large queen was found in a nest, about eight feet below the surface in a room, this queen was taken away, and the ants all disappeared. In another nest, where I took the queen away, the ants only abandoned a part of their works; this year they are in the same place as numerous as ever. I have great doubts of the white ant caring for the queen, having found this large maggot in the centre of three nests I have opened out: I believe it is the queen, but who her husband is, and why she is some hundred times as big as any of her family, I know not. The queen appears to be blind, able to curl herself round only; the head is shining chesnut-colour, the body dirty white, with six legs near the head, apparently of no use; the body is in ribs, and has a black line on the back across each division, altogether a most repugnant-looking queen, and bearing as little resemblance to her subjects or offspring as possible.

Some birds feed on the white ant in its earthly shape, such as partridges, guinea-fowls and chickens, but other birds do not then eat them much; the acid is too strong. I have seen a woodpecker on a tree covered with these insects, of which he could have caught hundreds, but he took no notice of them, and kept hammering away for some other food. After the first heavy fall of rain, in the rainy season, the white ants come out of their nests by thousands; they are then furnished with two pair of wings, and are nearly an inch long (the white ant is rather more than a quarter of an inch long in its working state). The ants are all about, helping their winged companions out, keeping the hole clear, tugging at a bigger one than usual. This is their swarming time; yet this term is incorrect, because these insects do not keep together; each one flies off on his own account. I have seen four holes streaming forth one continued line of these winged ants: they began to come forth at 11 A. M., and were still doing the same at sunset. This is the time every bird has a feast; many that usually do not eat insects then devour them: kites, hawks, crows, and the common gray squirrel also make a meal of them. The insect comes out of its hole, with some little difficulty, head first, with a good deal of struggling: its wings are shining and new-looking: when free of the hole it spreads these out, and mounts up into the air straight, and keeps hovering about without any apparent object; those that escape the birds, after flying about for half an hour or so, come back fluttering, with their wings on some little pebble, bit, brick or

stick, and in a few seconds all four wings drop off, and the insect then looks like a brown-barred beetle, and moves about at a considerable pace: two are generally together, and one follows the other, in every way conforming to all the movements of the leading one, who goes about right, left, straight ahead, then back all over the ground again, searching very diligently for something, without any success. I have thought that this was a sort of amatory chase, but have seen nothing further take place: without doubt these insects go back into the ground again, for the next day not one is to be seen after a flight. Sometimes these flights take place quite suddenly from the bare face of your room wall, where you had flattered yourself there was not a white ant near; the room becomes so full of them as to be a perfect nuisance; the candles or lamps are put out by their flying into them, and dinner is obliged to be sent away.

This insect is one of the pests of India, nothing is safe from it; it brings down your buildings, when you think they look in first-rate order, eats great holes into your books, which you fancy are dusted every morning (if they had been the ant would not have come); it eats your carpet nearly through, which to outward eyes looks all right; destroys your tents, which you hope will be ready for the cold season; eats up the stock of your gun, if not looked to every day; honey-combs your shining chunam-floor, as hard as china, and which you think it is impossible for any insect to get through. There appears no cure for this plague; it does not like sand or saltish earth, and has a great aversion to wood-ashes, which when fresh have the effect of bursting and drying up the white ants; the potash has some effect on the acid of the insects: the only way to prevent a tent being eaten is to place fresh ashes under the sides. These insects *must* have direct communication with the ground; thus if you cut off communication effectually from the ground round a tree attacked by them, the earth-work becomes dry, and the ants dry up also in a few days. Their work is done quickly; if the top of one of their cones is knocked off it will be covered all over again in a few hours: the little workmen begin putting the earth on the sides, and gradually lessen the space until the dome is completed. I have not been able to discover that extraordinary order and arrangement with this species which is quite visible with many other kinds of ants, for the reasons already mentioned; however, entomologists declare they possess the same habits: how they have found this out seems difficult to know.

There are several kinds of wood the white ant does not touch, *viz.*, green fir or cedar, dry mahogany, black wood (of which the Bombay

furniture is made), babool (*Acacia spinosa*), umultas (*Acacia fistula*), the banian and peepul (*Ficus Indicus* and *F. religiosa*), and a few others. Although no colony or city of white ants is visible anywhere near, still they make their appearance in one night under any piece of dry wood or leather thrown on the ground, and oftentimes the earth is covered with their branched tunnels, so that it would appear the earth is full of them, unconnected with their cities, which may be only their breeding-places. There must be some very quickening process in the state of the atmosphere when the rain falls, as the winged ants look much too fresh and new to have been born even a few hours before they make their exit from the earth, which takes place at the same time all over the country where the rain has fallen. If it were not for the very many enemies the white ants have at their flight-time—every kind of bird, spiders, frogs, toads, lizards all pitch into them—they would increase in such numbers that not a tree would grow in many parts of India. The black ants take off numbers of them to their nests. I have timed them carrying off the winged white ants at the rate of eighty and eighty-three a minute.

T. F. NORGATE.

Sealkote, Punjaub, August 27, 1867.

NOTICES OF NEW BOOKS.

'*Letters Home from Spain, Algeria and Brazil, during past Entomological Rambles.*' By the Rev. HAMLET CLARK, M.A., F.L.S. 178 pp. demy 8vo, and two coloured lithographs. London: Van Voorst. 1867.

THIS work required a short introductory chapter, which the surviving brother or some friend of the lamented author might readily have supplied. As it is the work comes before us in a crude and therefore unsatisfactory state. The objection, however, disappears as we turn the pages and accompany Mr. Clark in his wanderings, and a very pleasant companionship it is. The title defines with sufficient accuracy the countries visited; and the information respecting them is imparted in letters addressed from time to time to friends at home,—one to Dr. Power, two to myself, and all the others to a beloved father. They abound in kindly feeling and a keen appreciation of the beauty of the natural objects which continually presented themselves. There is a buoyant and unvarying determination to enjoy exhibited in almost every page, and this is combined with a just and intelligent appreciation of all the author saw.

The most faithful as well as most favourable idea of this little volume will be conveyed by means of a few quotations, selected as bearing more particularly on Natural History. The first is a passing note on the apes at Gibraltar, concerning which we are and have been in a state of almost absolute ignorance. I presume my readers to be acquainted with what has already appeared on the subject of these apes in the 'Zoologist' (Zool. 1292 and 7985), and therefore the passage cited below requires no comment.

"The peculiarity of the Natural History of the Rock (in which alone I am really interested) consists in its monkeys. A large tribe of the Barbary ape (becoming as they say less and less numerous) inhabits the high inaccessible crags; they seldom are seen except in severe weather: in *very* bad weather they have been known to come down and steal. I wonder how they got there! where from? and when? This is the only spot in the whole of Europe where they are found. No doubt they have come from the south, from Africa—just as, of the many insects we find common to both sides of the Mediterranean, some have come from south to north; but *how* and *when* are mysteries to me, or why, when they got to Gibraltar, they did not occupy some of the Sierras also; this is a puzzle."—p. 29.

It will, I think, appear from the next quotation that Ventnor, so celebrated for its pulicine population, is altogether eclipsed by Algiers, which seems a very paradise, or as the venerable Kirby would have called it, "the metropolis" of fleas.

"June 13. Our night has been one of misadventures to each of us; by day we prey upon insects, by night insects prey upon us. We have a splendid invention to resist their attacks, we call it a "flea-bag"—simply two thin sheets sewn together round three of the sides, and capable of being drawn up tight with a strong tape through a well-sewn hem on the fourth; we get into our bags, draw the string tightly round the neck fasten it from the inside, and if we are cunning we are safe, except on neck and face; but there, alas! whole squadrons of light cavalry assail us, and they find their way through the creases of my tightly drawn bag; they prevent sleep, they promote fever and thirst, and in the morning offer themselves an inglorious prey to my righteous wrath."—p. 57.

The Zoology and Botany of San Theresa, in Brazil, seems to have proved exceedingly gratifying to our travellers, and a brief quotation will intervene agreeably between two less seductive paragraphs.

"You have no idea of the gorgeous *tout ensemble* of the living forms that we meet with on our walks; butterflies in profusion with the richest or most dainty or most quaint colours; beetles like precious stones for brilliancy; bugs and flies grotesque, and of all hues; ferns

lovely (one hundred and twenty-one different species are found in one single locality, S. Theresa hill, the scene of our first walk); palms, cocoa-nuts, flowers, orchids, flowering trees of all forms and hues and scents! and all these not as in an English greenhouse, single gems in the midst of mere ordinary woodlands, but the component parts of a vast expanse of forest scenery, each individual item of which is just as beautiful as they! I cannot describe it; I can only (as I often do) just sit down in the midst of it all and look and think and feel it.”—p. 110.

“It is nearly eleven o’clock at night. Gray has been in his room an hour; I am sitting writing in the airiest of apparel at an open window, the fireflies are gleaming in the dark like stray atoms or sparks of animated sunshine; the mosquitos are (thanks, perhaps, to the open window, only it is so deliciously cool) in heavy clouds and full chorus of harmonies (not all unisonous) round my lamp; cockroaches as big as mice are racing noisily across the Indian matting; strange sounds come to my ears from the distant forests, fleas are biting me, and every now and then a flop against the lamp announces the visit of a beetle. What can mortal man enjoy more?”—p. 111.

The following sketch of the effects of a Brazilian sunrise at Barrera is very delicious, and makes one long for a sight of tropical nature in its home: alas! how different from what we see of it when transferred to our own dull clime!

“Then the glorious sun came out! and the whole valley in one instant woke up to reply to his greeting—everything laughed with brightness; trees got up a little crisp fresh rustling in their foliage, flowers brought out their brightest colours, bushes and vegetation all at once dressed themselves in gorgeous suites of countless diamonds; even the spiders’ webs, with their geometric tracery, are decked with diamond drops; one or two sensible, sober-minded little mites of ants came out from under a twig, where they had been belated last night, just like ourselves, and, sunning themselves in a cozy nook, stretched their limbs and combed out their antennæ; and in the midst of this fairy land wandered a happy mortal with a glass tube in his fingers, picking up from bush and flower pretty little beetles, pleasant souvenirs in after days of a wretched resting-place, reconciled again to existence, and thinking how strange it is that man at his lowest estate can mar the most lovely scenes of nature, and that man at his highest estate can make the wilderness blossom as the rose.”—p. 117.

I must conclude these extracts with one about “ants,” which shows that these creatures are as diverse in their dispositions and propensities as man himself.

“The ants abound! Brazil is one great ants’ nest! they are of all sizes and dispositions: some are a plague to us in the house, for they will come at nights and prey on the insects in our store-boxes; some are

a plague to us in the forests, they get inside one's clothes and bite and sting; others are a more serious evil still, vegetable-feeders, which will take a fancy to the leaves of some tree, and strip every leaf off in one night! I could not imagine why Heath had a broad, deep, ugly ditch running all round his vegetable garden, when a neat rail would keep out mules quite as well, until he explained to me it was in the somewhat vain hope of keeping the ants out of the garden; he confessed that it had hardly any effect at all. There is one species celebrated for its mining propensities; not only does it live underground, but it delights in making tunnels leading in every direction, to nowhere at all, two or three feet below the surface: a few years ago they took possession of a cleared hill near the house, and prospered so that last year Heath and his slaves made vast efforts to reduce the nuisance; they got gunpowder and brimstone and other slow-burning nastinesses, and tried to smoke them out: the means were effective enough in one sense, for all up and down the hill-side fifty or a hundred yards from the great orifices, little threads of white smoke kept rising up, showing that the whole slope was tunnelled: this year the ants are worse than ever. The only effective remedy, as it seemed to me, would be to let in small streams of water from the top towards the base, instead of currents of smells from the base towards the top; but of course springs of water are rarely found near the tops of hills, and so they escape death by drowning.

"There are some long-jawed fellows that attack you by a jump, not by a spring of their legs but of their backbone (only they have none); they can fling themselves about a foot, and live under fallen timber and such places; they are not so cruel as the little ones. The *small* species are my terror; their stings are like red hot needles, and they do it with such a savage will! First they get firm hold with their jaws, then they get other purchases with their feet, and then like lightning they arch back their bodies and drive, with all the powers of body and legs, their stings in to the very hilt! and so cunning and hostile are they, that they do not, like some others, keep hold with their mouths, thus making only one red mark in the skin, till they are picked off; much less do they run off having done their duty, but they go, say just two inches forward, and then go through the stabbing process again. On one occasion I was in very great trouble; inadvertently I stood for a moment examining the contents of my net in the midst of their run—a forage expedition of the whole tribe. I did not see them, nor indeed did I look, so intent was I on my precious beetles; when all at once I felt their stings over a great part of my body; the whole legion had walked up my boots! the pain was really dreadful! But happily when I had changed my quarters, and thrown off in desperation half my clothes, a slave youth came by, who helped me to pick the wretches off my body and clothes, and to get in order again: since that adventure I have always been careful not to interrupt the social migrations of ants."—p. 131.

EDWARD NEWMAN.

Discovery of Red Deer-horns and other Animal Remains, in the Bed of the River Ribble; with some Account of the Ancient Denizens of the Forests of Blackburnshire and Bowland. By Captain H. W. FEILDEN.

IN the year 1865, when certain improvements were going on for deepening the bed of the River Ribble, below the town of Preston, the dredgers came upon a horn and bone bed. Mixed with the soft mud of the river the dredging-machine brought to light great quantities of antlers and skulls of the red deer, massive frontal and other bones of wild cattle or bubali, enormous skulls and jaws of wild boars, goats, and along with them two human skulls.

All these remains were more or less injured by the dredging-machine; no antler was brought to the surface in a perfect condition, though many pieces remained two and three feet long. These fragments were in such quantities that a friend of mine sent a cart and two men to the spot, and in a day they collected nearly a load. Not unfrequently fine and perfect heads of red deer are dragged from the bed of the Ribble by the salmon net-fishers, and there is now at Feniscowles Hall, near Blackburn, a magnificent head with fourteen points and of great weight and thickness, taken out of the Ribble a few years ago. Its condition is as perfect as if it had just come from a deer park, the only sign of age being the rich black colour the horns are stained from immersion.

Why or wherefore this immense collection of animal remains should have occurred at this one spot, I cannot explain satisfactorily; it may have been the meeting point of the tidal and river waters, or else the configuration of the river bed and banks may have caused a great eddy at this point, or it may have been the result of one great flood.

Until comparatively late periods the country in which the Ribble and its tributaries rise and flow was a great forest; the names of Bowland and Pendle Forests still linger, but the antlered herds are gone. The last herd of wild red deer in Bowland Forest was destroyed in 1805. The wild cattle that used to be kept in Gisburne Park are now extinct; the herd had gradually dwindled, and, as there was no chance of the breed being perpetuated, the two or three remaining were slaughtered about seven years ago. I believe an experiment was tried of crossing them with tame cattle, but this only prolonged the breed for one generation, the mixed breed being barren.

That learned antiquary Dr. Whitaker, the late vicar of Whalley, Lancashire, gives in his 'History of Whalley' many interesting and authentic accounts of the great Forest of Blackburnshire and its tenants, from the time of the Saxon till 1805, when he mentions the destruction of the last wild herd of red deer that roamed in Bowland.

This great work of Dr. Whitaker's is more fitted for the shelves of the antiquary than the naturalist; but I will make a few extracts from the work, which I think will be of extreme interest to the naturalist, as they give authentic information in regard to several animals now extinct in this part of the country.

Dr. Whitaker, after a long and learned analysis of the forest laws, lists of the various seneschals of the Forest, from 1178 till the time of Queen Anne, lists of the animals of chase and various other matters, thus describes the Forests of Blackburnshire and Bowland, as "high and barren tracts, rejected at the first distribution of property when townships were planted, and commons mered out in the fertile and sheltered grounds beneath: in this state they remained among the last retreats of the wolf and the abode of stags and roes, and bubali or wild cattle, which are mentioned by Leland as remaining not long before his time at Blakeley, and of which tradition records that they were transplanted into the Dean's or Abbot's Park of Whalley, whence they are reported, on the same evidence, to have been removed after the dissolution to Gisburne Park, where their descendants still remain."

In Dr. Whitaker's work is the fragment of a most interesting diary kept by Nicholas Assheton, of Downham, Esq., for the year 1617 and part of 1618. Downham, still the residence of the Assheton family, is built at the base of Pendle Hill, within the limits of the ancient forest of Blackburnshire. Mr. Assheton, at the time he kept this diary, was a young and active man, engaged in all the business and enjoying all the amusements of the country. I will pass over matters of historical and general interest and confine myself to extracts from his entries relating to sporting, as they throw light upon the animals and birds then existing in this part of the country: some of the former are now extinct. He mentions, however, in this period, sixteen fox-chases, ten stag hunts, two of the buck, as many of the otter and hare, one of the badger, four days of grouse shooting, the same of fishing in Ribble and Hodder, and two of hawking.

Some of the entries are worth perusal to the naturalist, and I will therefore give examples.

"1617. May 2d. Hunting the otter: killed one; taken another, quick, at Salley.

"June 24. To Worston Woode. Tryed for ye foxe; found nothing. ¶ Towler lay at a rabbit, and wee stayed and wrought and took her.

"June 25. To the fox-hunting, 1 found in the warren. I hounded and killed a bitch-fox. Wee to Salthill; ther wee had a bowson (badger), we wrought him out and killed him.

"Aug. 12.* The king hunted and killed a buck.†

"Aug. 13. Mirescough. The king killed five bucks.

"Aug. 16. Hoghton. The king hunting; a great companie; killed affore dinner a brace of staggs. Verie hot; soe he went in to dinner; wee attend the lords table: and about 4 o'clock the king went downe to the Allome Mynes, and was there an hower and viewed them pcisely, and then went and shott a stag and missed. Then my Lord Compton had lodged two brace. The king shott again, and brake the thigh bone. A dogg long in coming, and my Lo. Compton shott again and killed him.

"Aug. 23. Downham. Hunting fox on Warsoe; killed one, another to Pendle; killed another fox, and earthed another, afterwards killed in the hole.

"Aug. 30. Went forth with Gregson, but light of nothing. To the keeper's; hee with us betwixt Crosdale and top of Burne, and into Whitendale, to have killed a stag with peece, but found none.

"Sept. 1. To Totteridge. Ralph Anderton shott a stag at topp of the east end of Totteridge. The keepers two hounds cast off; brave sport! killed him in the Fence. Soe to Thom. Parker's.‡ Broke him up; eat the chine and the liver.

"Sept. 6. All but Mr. Chancellor into Bolland. At Stable Oak. A stag killed at Harden, and another a little above which made excellent sport.

"Sept. 17. To Batterise, to Burnside and Whitendale, overrun with goode deare; a knubb was killed and a calf.

* Mr. Assheton was in attendance on King James the First, with the great majority of the neighbouring gentry. The king was now making his royal progress from Scotland to England, and was on his way to Hoghton Tower, where he was received by Sir Richard Hoghton with becoming state.

† This was in Myerscough Forest, near Garstang: the forest has long ago disappeared, and it is now under the plough.

‡ Parker, of Browsholme or Broxholme; still in possession of the family.

"Oct. 27. A hunting. Found no fox. Killed a hare.

"Oct. 29. Riding to Worston, brother Houghton and Coz. Henry hawking; lost ther hawke.

"Nov. 4. Downe to the water: Dick killed a mallard and a duck at one shoote. Sherborne killed a water ousle, 2 pigeons and a thrush.

"Nov. 14. Bro. Sherborne went to th' Arrope and Skelfshaw Fells with gunnes; shot at a morecock, struck feathers off, and missed.*

"Nov. 24. To Downham by Harropwell. Had some sport at moorgame with my piece, but killed not.

"Dec. 23. To Rowe Moor, and killed ther 3 heath cockes."

We find, therefore, that of the animals of chase mentioned in this diary, three species are extinct as *fera natura*, in this locality, at the present day; namely, the red deer, the fallow deer or buck and the bowson or badger. The otter still tenants the Rivers Hodder and Ribble; foxes are numerous; rabbits are more so, I daresay, than in Mr. Assheton's time, and the same may be said for the hare. Of birds the mallard and duck are still to be found, though one is not likely to get many double shots as Dick did. Water ouzels are as numerous, I should say, as when Sherborne went to the river bank gunning two hundred and fifty years ago. Two days ago I was on the banks of the Ribble, and saw them flitting merrily from stone to stone. Pigeons and thrushes still abound.

It appears from this diary that the result of three days' grouse shooting was three killed and one feathers struck off. Taking into consideration the poorness of the fire-arms then in vogue, I fancy the moor-game must have been less abundant than at present, judging from the result of the bags. Grouse are now numerous on the Fells that bound the old Forests of Blackburnshire and Bowland.

In a survey of Bowland Forest, taken in the time of Cromwell's usurpation, 12th October, 1652, twelve keepers are enumerated "for the deere both red and fallow," and the "redd deere" are estimated at twenty, worth £20, and of "fallow deere" forty, valued at £20; that is, there were twelve keepers for sixty deer! the stock must have been poached and destroyed during those troubled times.

As I have before mentioned, the last remnant of those great herds that in early times grazed on the banks of the Hodder and Ribble,

* No shooting flying till many years after.

and the mountain sides of Pendle and the barren tract of Bowland, was destroyed in 1805.

H. W. FEILDEN.

Pleasington, Blackburn.

Notes on the Folk-lore of Zoology. By EDWARD R. ALSTON, Esq.

(Continued from Zool. S. S. 979.)

II. BIRDS.

Many of the popular superstitions and beliefs regarding this class have been noticed by Mr. Harting, in his excellent papers on "The Birds of Shakspeare," to which I will from time to time refer.

Eagle.—The eagle, in southern poetry and fable, is the bird of the gods, the one that soars nearest to the sun, the only creature that can brook the mid-day ray with unveiled eye (Harting, Zool. S. S. 355, 393). But in the northern myths he is hardly treated with so much respect (perhaps because he is better known, if it be not treason to say so); there the bold falcon is the favourite of heaven, while the larger and more sluggish eagle is associated with the giants, and is a common form for those foes of the gods to assume. Under the name of *Hrāfwélgr* (corpse-devourer), he is also the emblem of the wind, but in one or two instances is assigned to Odin as a companion (*Simrock*). According to Loyd and other writers, the northern peasants relate that the golden eagle destroys deer and other large animals by the following ingenious device:—they soak their wings in water, cover them with sand, and then swoop against the heads of their victims, which, being thus blinded and wild with pain, are then easily driven over the nearest precipice.

Falcons and Hawks.—The northern gods, as already stated, loved the noble falcon, and often took his shape, or at least assumed his pinions when on a journey (*Simrock*). In mediæval romance and ballad the good knight's falcon not unfrequently plays the part of a carrier-pigeon, and is sometimes gifted with the power of song and even of speech. Thus, in the fine old Scotch ballad of "My Gay Goshawk," the hero sings—

"But weel's me on ye, my gay gosshawk,
Ye can baith speak and flee,
Ye shall bring a letter to my love—
Bring an answer back to me.

* * * * *

“ O first he sang a merry song,
 An’ syne he sang a grave,
 An’ syne he picked his feathers gray,
 An’ her the letter gave.”

So noble were the falcon’s instincts that when a great hero died his favourites would wander all over Europe till they found a new lord worthy of their old one !

Kestrel.—The ancients believed the kestrel to be the friend and protector of pigeons, defending them from other falcons, and inducing them to remain at home. Wherefore the bodies of four kestrels, according to Pliny and others, should be enclosed in newly-painted earthen pots, and buried at the four corners of the dovecote, and then the pigeons will be found not to stray from the place. The old Scotch name of “ stanchel ” was probably a corruption of *stand-gale*, from its well-known habit of hovering in the wind ; hence also its local name in Angus, “ Willie-whip-the-wind.” (Jamieson, ‘ Scottish Dictionary.’)

Hen Harrier.—My friend Mr. R. Gray informs me that in the Hebrides, where the magpie is unknown, this species takes its place as a bird of augury. “ Should any one be more than ordinarily fortunate on a certain day, it is said that he must have seen the ‘ clam-hanluch ’ (from *clamhan*, a hawk, and *luch*, a mouse) or hen harrier.” This bird is very abundant in these islands.

Owls.—The owl is in all lands the typical bird of superstition ; its noiseless flight, its horrible nocturnal cries, and the ghostly character of its usual haunts, all combine to connect it with the powers of darkness. Accordingly all dramatists and novelists have used it freely in working up incantation and demoniac scenes. The curious and widely-spread legend of the owl being a transformed baker’s daughter has been already noticed by Mr. Harting (Zool. S. S. 412). The same story, under other forms and applied to other species, will be again alluded to.

Water Ouzel.—The reputed power of this bird of walking along the bed of a river may, I think, be included among popular delusions, although a voluminous writer of the present day has declared it to be “ an established fact.”

Stonechat.—In the North of Scotland this bird is called the “ clocharet ” or “ clocharn ” (from *cloich*, a stone, and *ram*, a song ? *Jamieson*), and is believed to be assisted by the toad in incubation. In the

Lowlands it is exempt from having its nest "harried" (*i. e.* robbed) by country boys on account of the awful curse which its notes are supposed to contain :

" Stane-chack,
De'il tak'
They wha harry my nest,
Will never rest,
Will meet the pest,
De'il brak' their lang back
Wha my eggs wad tak', tak'!"

(*Chambers, 'Popular Rhymes of Scotland.'*)

The usual Scotch name for both the stonechat and whinchat is "stane-chacker."

Wheatear.—Mudie informs us that the wheatear is a doomed bird in many parts of Northern England, because the peasants believe that to hear its note is a token of approaching death. He suggests that its habit of frequenting old church-yards, ruins and sepulchral "cairns" may be the origin of this superstition. In the Hebrides this bird seems to share the Gaelic name of the last species. Mr. Gray writes me concerning the wheatear or "clacharan:" "Being a migratory bird, this species is also the subject of anxious consideration on its arrival. When seen for the first time perched on a rock or stone it portends a bad year to the person who sees it; but when found perched on a grassy mound it is looked upon as a happy omen. Two friends, for example, who have not seen each other for some time happen to meet, and the one asks the other eagerly, 'Have you seen the clacharen yet?' 'Oh, yes!' is the reply, 'I have seen it on a sod—all right!' But it sometimes happens that an ominous shake of the head tells its own story."

Robin.—Both in England and Scotland the robin and the wren are represented by rural tradition as husband and wife; probably this is because the female redbreast shares the bright colours of the male, while both sexes of the wren are clothed in quiet and quaker-like garb: both are sacred from bird-nesters. In Scotland a popular rhyme informs us that

" The robin and the wren
Are God's cock and hen;"

Another version of which is said to be common in Warwickshire, *viz.*:—

“The robin and the wren
Are God Almighty's cock and hen;
The martin and the swallow
Are God Almighty's bow and arrow.”

(*Chambers.*)

This association of the robin and the wren and the legend of the ‘Babes in the Wood’ are both very old: John Webster (17th century), in the ‘Duchess of Malfi,’ alludes to them thus:—

“Call for the robin redbreast and the wren,
Since o'er shady groves they hover,
And with leaves and flowers do cover
The friendless bodies of unburied men.”

And Mr. Harting has noticed Shakspeare's and Isaak Walton's allusions to this charity of the “honest robin” (Zool. S. S. 418). Among the Scandinavians this species was sacred to the fiery-bearded Thor, and as the wren was also sacred to the northern gods, this may, after all, be the true origin of these fancies.

EDWARD R. ALSTON.

Stockbriggs, Lesmahagow, N. B.,
November, 1867.

(To be continued.)

Notes from Flamborough. By JOHN CORDEAUX.

OCTOBER, 1867.

October 14th. Arrived at my old quarters near the north landing-place at 3.30 P.M. In the evening walked along the north shore towards the light-house. Observed in the course of this walk several rock pipits, a kestrel and some thirty or forty lesser blackbacked gulls, with two exceptions young birds. I also saw a single skua (*Lestris catarractes*). This northern side of the headland of Flamborough, from the northern landing-place to the lighthouse, is extremely wild and picturesque. Time and tide have indeed wrought many mighty changes in this coast-line, since it first arose a long unbroken and gigantic barrier of limestone, stemming the fierce onslaught of the wild North Sea. A year has passed, and all is changed save the destroyer. The great waves yet rush landward, line beyond line, even as they did in those remote ages, bursting in thunder at the root of the mountain, ever unceasingly night and day, summer and winter,

striving to breach these solid bastions; and well have they done their work, now the white limestone cliffs are a ruin; mighty isolated columns of chalk, once portions of the cliff, now standing alone, the outposts of the slowly retreating land. Here the wave has worn a deep and narrow gorge far inland, there again the cliff rises beyond the coast line, as yet unsubdued; its base, however, we perceive is worn completely through, forming a mighty archway, through which the sea is ever racing in the wildest confusion. Give it time and it will fret away the seaward pillar, and then the face of the cliff will shoot forward and one more bastion will have been carried.

It was dark when I turned homewards along the cliffs. The wind had risen, sweeping upwards, moaning along this broken and deserted coast in a most melancholy cadence; drifting inward the gray sea fog, which in a few minutes wrapped the headland as in a shroud; even the blaze of the lighthouse was obscured—

“The white mist, like a face-cloth to the face,
Clung to the dead earth, and the land was still.”

That night an 800-ton barque went on shore within a quarter of a mile of the light-house. It proved a fortunate circumstance for the fishermen, who got £200 for getting her off the rocks, which, thanks to the high spring tide, they did before morning, and £35 more for taking her to Sunderland.

October 15th. Saw at the house of Mr. Bailey, two skuas, shot off this coast on Saturday, the 12th. Both were young birds—the larger of the two *Lestris pomarinus*, the other *L. Richardsonii*. The pomarine skua was procured in a curious manner—Mr. Bailey had shot at and slightly wounded a kittiwake, which fell at some distance from his boat; before he could get near it the disabled bird was attacked and killed by the skua; it speedily, however, fell a victim to its temerity, and on the approach of the boat was shot, clinging to the body of the gull. On the same day Mr. Bailey saw a Buffon's skua in mature plumage, but failed to bag it. Many hundreds of kittiwakes were seen about the headland on the 14th and 15th, and I was told that on the latter day upwards of one hundred were shot and brought in by one boat. I deeply regret to write that this graceful and trustful gull is threatened with speedy extinction at this famous breeding-place; thousands have been shot in the last two years to supply the “plume trade.” The London and provincial dealers *now* give one shilling per head for every “white gull” forwarded; and the slaughter

of the poor birds during the season affords almost constant and profitable employment to three or four guns. One man, a recent arrival at Flamborough, boasted to me that he had in this year killed with his own gun four thousand of these gulls; and I was told that another of these sea-fowl shooters had an order from a London house for ten thousand. No wonder the kittiwakes are rapidly disappearing. There has this year been a marked diminution of the great breeding colony in the Speeton cliffs. The shooting commences as soon as the poor birds return to their summer quarters, and is carried on without intermission on every fine day in the spring, summer and autumn. A few years more and the glory of Flamborough will have departed. Can nothing be done to check this cruel, shameful and shortsighted destruction of our beautiful sea-fowl? This slaughter is going on, not only at Flamborough, but at every other favourable position round the coast, and will continue, unless our fair countrywomen are moved by compassion, or find some substitute more novel and taking than the all-prevailing plume. Let them persist in wearing sea-bird feathers, and the end is indeed not far distant. Future generations, when they flock to the sea-coast during the pleasant summer days, will only hear the tradition of the sea-birds home. The grand scenery of our storm-broken coasts will remain, but the winged multitudes which once gave life and animation to these lonely headlands will for ever have disappeared, the victims of a passing folly. Will not some pen more able than mine write an appeal powerful enough to melt the heart of even the most devoted votary of fashion—for women are proverbially pitiful, and I am sure will never countenance a custom indulged at such a cost? The young kittiwake is particularly in request by these feather-makers, as the rich black markings on the plumage contrast favourably with the pure white of the under parts and pearl-gray of the back. Often a rare gull is procured by these local gunners: these birds generally find their way to some collector; but this is not always the case, and many a valuable capture is sent away amongst a heap of the common species to be cut up for plumes. A young Iceland gull (*L. Islandicus*) was shot on Saturday the 12th. I was told the Iceland gull is not uncommonly met with at Flamborough during the autumn and winter, and about half a dozen are shot by the gunners every year. The lesser gull has also been frequently killed, both at Flamborough and the Bridlington coast; two in immature plumage were shot on the 12th. *L. eburneus*, *L. Sabini* and *L. glaucus* have been killed at Flamborough. Of the terns the

common and arctic are those most frequently met with. I examined several skins of both species. Several Sandwich and black terns were shot during the autumn, and a solitary whitewinged black tern, I was told, seen this year in the neighbourhood.

A considerable flock of petrel (*Thalassidroma pelagica*) arrived in Bridlington Bay during the first week in October, and some eight or nine of these little ocean wanderers were shot: they had little fear of man, so little that one was knocked down by the short gaff the fishermen use when hauling in the cod.

I had a long talk to-day with the man at the lighthouse on the subject of our migratory birds. At this season it is no unusual circumstance to pick up birds on the balcony below the lantern, killed by flying against the glass. This is more frequently the case on thick, dark and foggy nights, when the light is in a great measure obscured. Woodcock and wild duck, and frequently snipe, have been found thus knocked on the head, and occasionally partridges and starlings, and other species not probably migratory. Sometimes flocks of smaller birds will on these dark nights flutter round and against the glass like moths, and may be then taken by hand, as they are completely bewildered by the dazzling glare. He had often seen in the autumn, about "woodcock time," flocks of the little goldcrested wren. A temporary and favourite resting-place was the small garden attached to the lighthouse, where he had observed them foraging amongst the cabbages and greens; the next day not one would be seen in the neighbourhood. He told me the woodcocks usually arrived with a N. or N.E. wind. Had once seen some arrive during the day. They alight immediately on landing, either just topping the cliff, or, in stormy weather, dropping at the base just above high water, where for a time they lay like stones in any nook or corner. After a stormy night they are frequently found in the little caves and hollows, worn by the waves at the base of these sea-cliffs. If put up on their arrival they move with a slow and lazy flight, seldom going more than a hundred yards. A single woodcock was this year killed at Flamborough in the first week of October; and six, I heard, killed on the 14th.

JOHN CORDEAUX.

Great Cotes, Ulceby, Lincolnshire,
November 1, 1867.

Ornithological Notes from Norfolk for August, September and October.

By HENRY STEVENSON, Esq., F.L.S.

(Continued from S. S. 811).

Hooded Crow nesting in Norfolk.—An instance of this fortunately rare occurrence in this county occurred, during the past summer, in Mr. Upcher's grounds at Sherringham, near Cromer. The old birds had been observed on several occasions by the gamekeeper, and on the 26th of August, as Mr. H. M. Upcher informs me, he had an opportunity of seeing both old and young birds himself: he first saw one old and two young ones, and afterwards two more, but whether the same or the other parent bird and a third young one he was unable to determine.

Rosecoloured Pastor.—On the 7th of September I saw a very fine adult male of this species, which had been shot at Hemsby, near Yarmouth, about the end of July, and having been badly mounted at first, was being re-stuffed by Mr. Knight, of Norwich. This species has not, I believe, appeared in Norfolk for the last nine or ten years.

Spotted Redshank.—An immature bird shot near Yarmouth about the last week in September.

Storm Petrel.—During the first week in October, after a succession of strong gales from the N.W., a flight of these birds appeared on our coast, and specimens, as is usual on such occasions, were picked up, either dead or dying, both inland and by the sea; the first, according to date, was picked up dead at Little Fransham, several miles from the coast. Between the 4th and 9th some seven or eight more were obtained on the beach, either at Sherringham or Cromer, and others are said to have been knocked down with stones by the boys and not preserved. On the 7th a single bird was caught alive in a farm-yard at Lexham, nearly in the centre of the county; and on the 9th another was found dead at Hickling, near Yarmouth. At Lynn, as I am informed by Mr. Wilson and Mr. E. L. King, several were reported to have been seen flying in the harbour on the 30th of September, but on the 5th of October a male bird was picked up dead in the marshes between Snettisham and Dersingham, and another was found dead on the mud of the harbour on the 9th. These birds were for the most part in very poor condition, and were probably portions of one large

flock whose appearance, both to the north and south of this county, has been already recorded in the 'Field' and other journals.

Skuas.—About the same time with the little storm petrels, we have had a somewhat unusual influx of skua-gulls, and those chiefly of the rarer kinds. The appearance of these birds, however, may be accounted for indirectly by the extraordinary abundance of herrings off the coast, the parasitic gulls following in the wake of others, at this season, wherever food is more particularly abundant. On the 4th of October a very fine adult male of Buffon's skua and a young bird of the year were shot at Salthouse,* and a second old bird with a young one were seen at the same time. The adult specimen resembles the birds figured by Mr. Gould, in his 'Birds of Great Britain,' having the bright yellow tinge on the sides of the neck; but unfortunately one of the long tail-feathers was shot away and the remaining one is shortened by an inch or two. Singularly enough, another adult bird of this species, killed on Yarmouth beach, about the same date, is similarly injured. In the stomach of the old bird from Salthouse were a few fragments of feathers, apparently taken from its own breast, but no food of any kind, and with the exception of one small beetle, entire, the stomach of the young one was equally empty. On the 4th, as I learn from Mr. Wilson, of Lynn, a female Richardson's skua, apparently, by his description, in immature plumage, was shot on the river-bank near Lynn; and on the 12th, as recorded in 'Land and Water,' an adult male of Buffon's skua was shot by Mr. Dugmore's gamekeeper, at Beachamwell, on land which was formerly warren, and more than a mile from any water. On the 12th also an immature pomarine skua was killed at Yarmouth, the under parts becoming gradually white, and the tail-feathers projecting nearly three inches; and on the 17th a still younger bird of this species, in its first plumage, was shot near Acles Bridge, on the Bure. Besides these I have heard of another Buffon's skua shot at Blakeney about the 20th of September.

Little Auk.—A few storm-driven birds of this species occurred, in different localities, about the same time as the petrels. On the 11th of October I was shown one which had been picked up dead, a few days before, some miles from the coast, and Mr. H. M. Upcher informs me that he received one, on the 5th, which had been picked up in a small running stream at Lower Sherringham, where another was seen but not taken.

* These were stuffed for a gentleman residing at Beeston Regis, but not killed there, as stated by Mr. Gunn (Zool. S. S. 992).

Gray Phalarope.—I have heard of three specimens procured in this county during the present month, of which the first was shot on a pond at North Wootton, on the 5th of October, and with a male killed in the marshes near Lynn, on the 11th, is being preserved by Mr. Wilson for the Lynn Museum. The first was in poor condition, and the other very fat. On the 10th a very plump specimen was sent to Norwich for preservation, which had been killed on the previous day at Beeston, near Cromer. This bird, both on the throat and upper parts of the plumage, still shows traces of its summer plumage.

Cormorant.—An immature bird, also purchased for the Lynn Museum, was shot below the Lynn Estuary, on the 12th of October.

HENRY STEVENSON.

Norwich, October 24, 1867.

India-rubber Boat.—If any of your readers could kindly give me some information regarding the following I should be exceedingly obliged:—I wish to know where and from whom I could purchase, new or second hand, or borrow, an India-rubber boat, to hold one person, or what would be a good substitute for such? Could a good substitute be made of sheepskin, and if so by whom and at what cost? The use I would put it to would be not so much in a piscatorial point of view as for the purpose of birdsnesting on remote Highland lochs, and I should require that it could be carried either in a large game-bag or strapped on to a fishing-basket. The expense of an ordinary India-rubber boat is too great—£15, I think.—*John A. Hurvie Brown; Dunipace House, Falkirk, Stirlingshire.*

Ornithology of Berks and Bucks.—As I am at present engaged in a little work upon the birds of these two counties, I should be very much obliged to any gentlemen who are cognizant of the occurrence of rare species in either county, if they would kindly send notices thereof to me. Any facts connected with the Ornithology of these counties, however trivial, will be gratefully received.—(Address to) *Alexander Clark-Kennedy; Eton, Bucks.*

Autumnal Migration at Scilly.—The shooting party at Scilly up to the present time report the arrival of only a few scattered woodcocks—no decided flight; the same remark applies to the Land's End district. In the last week my nephew reports that he saw a large number of black redstarts, mostly in the *gray* state of plumage, only one or two in the black plumage. Bramble finches had also made their appearance, and also stock doves and a Slavonian grebe (*P. cornutus*).—*Edward Hearle Rodd; Penzance, Nov. 4, 1867.*

Bluethroated Warbler off the Norfolk Coast.—I write to inform you of the occurrence of the bluethroated warbler (*Phanicura suecica*) off the coast of Norfolk. While coming from Christiana to London by the S. S. "North Star," we had observed many birds performing their autumnal migration. The wheatear, titlark and ring dotterel had been seen in mid-ocean flying easily against a light S.W. breeze. The numbers of these migrants increased as, on the 1st of September, we approached

the Norfolk coast, many of them, as the weather was thick, settling on the ship. Among these was a bird which we took at first to be a redstart, as it sat up in the crosstrees, but which, on taking a short flight to the rail of the companion-ladder, was seen to be a bluethroated warbler, a bird of the year, with the blue feathers of the horse-shoe intermingled with brown, in the same state of plumage as many procured two years before in the marsh at Fogstuen, on the Dovre Fjeld. We watched it some time, until it flew off in the direction of Aldeburgh, distant then about twelve miles, where we will hope it found a congenial abode, if indeed it ever reached land in the face of the fresh breeze which just then sprung up.—*J. R. Griffith; Oxford.*

Swallows and Martins dying from Cold.—Having just read Mr. Moor's note in the November number of the 'Zoologist' (S.S. 990), I beg to inform him that I picked up a martin in our garden at Aldeburgh, Suffolk, upon the 24th of September last: one of the servants first saw a bird—a swallow as he thought—fly down and settle upon a young shrub; he then called me to look at it, but by the time I arrived at the spot the bird had fallen from his perch and was lying dead underneath it. I examined this bird, and found it to have died from starvation or cold, probably both. On the 16th or 17th instant I found another martin, which had also perished from cold, close to Darsham House, near Saxmundham, in Suffolk. I observed that many swallows and martins flew with great difficulty about this time (Sept. 20th): I heard of several others being picked up near Darsham, all of which undoubtedly perished from want of food and the effects of cold weather.—*Alexander Clark-Kennedy; Eton, Bucks, November 1, 1867.*

Dates of the Departure of Immigrants for 1867.—The following are the days upon which the bird named was last seen in the county of Buckinghamshire:—

Swallow	October 20.	Lesser Whitethroat	September 20.
Common Martin	„ 19.	Spotted Flycatcher	„ 30.
Sand Martin	September 27.	Wryneck	October 3.
Swift	„ 6.	Reed Warbler	September 16.
Cuckoo	October 18.	Yellow Wagtail	„ 29.
Redbacked Shrike	September 27.	Sedge Warbler (about)	„ 20.
Nightingale	„ 20.	Garden Warbler (about)	„ 20.
Willow Wren	„ 18.	Wheatear	October 7.
Chiffchaff	„ 17.	Redwing (first seen)	„ 26.
Blackcap	„ 18.	Fieldfare	„ 18.
Whitethroat	„ 20.		

I did not take all these observations myself, but I can rely on most of them.—*A. Clark-Kennedy.*

Swallows at Salford.—If you think it of sufficient interest I wish you would mention, in your records of the "ways of the feathered tribe," that our swallows did not leave here in mass till the 25th of October, and that six were disporting about on the 4th of November, and one poor straggler on the 6th, a fine sunny day followed by a sharp frost: I fear the last never got away.—*John Plant; Peel Park, Salford.*

Reparation of a maimed Beak in the Chough.—The following curious circumstance has been communicated to me by an observer in whose accuracy I have the most entire confidence: In the course of last year a tame chough "broke at least half an inch off the upper mandible" of its beak, which after a time "commenced growing again and

is now as perfect as ever." My informant unfortunately did not notice the exact dates of the fracture and its reparation, but I have quoted his words in reference to the occurrence, which may be fully relied on.—*J. H. Gurney.*

Magpie with Yellow Beak.—With reference to the occurrence, in Scotland, of a magpie with a yellow beak, recorded in a former number of the 'Zoologist,' it may be interesting to your readers to be made acquainted with the following:—One day last July while walking with a friend in the neighbourhood of Buckfastleigh, we saw in a hedge-row before us a magpie busily employed searching for food. On approaching the bird it did not exhibit those symptoms of alarm which are generally common to the species, but on the contrary continued grubbing about in a very unconcerned manner. This appearing unusual (as it is a notorious fact that the magpie is one of our most wary birds) I paid more attention to it than I should otherwise have done. We still continued to advance, and it was not until we were about twenty yards from the bird that it imagined it time to be off. It then walked deliberately into the middle of the road before taking wing. While here it was in the full glare of the sun, and I then observed, to my astonishment, that it possessed a bill of a bright lemon colour at the base, but of a darker hue towards the top. I uttered an exclamation of surprise, and called my companion's attention to it, and he agreed with me that he had never seen or heard of a magpie with a beak so coloured. Now comes the question, how are we to account for this colouring? Not to its egg-loving propensities as suggested by Mr. Beckwith, as this bird's beak was of a much lighter tint than it would have been had it been stained with the yolk of an egg; besides, I was close enough to observe that the beak was perfectly smooth and had a very apparent gloss, which it would not have had had the bird been feeding on egg, as in that case it would have been of a dull gamboge colour and destitute of gloss. I do not imagine for a moment that this bird was any other than our common species, as in every other particular it was identical with *P. caudata*. The only conclusion I can arrive at to account for this abnormal appearance is that the bird was affected with some disease of the organs which secrete the horny matter of the beak, and in this, as in other cases, may be attributable to the extreme old age of the bird.—*G. F. Mathew.*

Lesser Spotted Woodpecker near Windsor.—On the 22nd of October an adult male of this species was shot in Stoke Park, Buckinghamshire. The red upon the crown of the head was very bright: I saw it in the possession of Mr. Ferryman, of Datchet, who was preserving it for the person who shot it.—*A. Clark-Kennedy.*

The Gray Phalarope in Norfolk.—On the 9th of October an adult female specimen, in the autumnal change of plumage, was shot at Beeston, near Cromer, and passed into my hands for preservation: its stomach contained the fragments of some minute shells and the remains of some small shrimps, including two quite entire. Two other specimens were also obtained about the same time, one at Lynn, and the other at Elmham.—*T. E. Gunn; 21, Regent Street, Norwich.*

Peacock with White Wings.—I saw a peacock to-day that had six or seven of the primary quill-feathers and about the same number of the secondaries of each wing of a pure white. Is this variation at all an unusual occurrence in this species?—*Id.*

Early appearance of Jack Snipe.—While shooting on the marshes near Rainham, Kent, on the morning of the 23rd of September last, I was surprised at finding a couple of jack snipe. This is, I think, unusually early, as I have not before noticed them till the second week in October. They were apparently both adult birds, with

their plumage rather shabby. The weather at the time was comparatively mild, with a fresh breeze and rain from the south-west.—*W. H. Power; Victoria Park Hospital, October 21, 1867.*

Great Snipe and other Rare Birds near Brighton.—A fine specimen of the solitary or great snipe (*Scolopax major*), which was shot near Lewes, was brought me on Wednesday, October 16th: I took the bird on the following day to Mr. Swaysland, of Brighton. On dissection it proved to be a female, we believe an adult, extremely fat, and weighing nearly seven ounces and three-quarters. The following rare birds have reached Mr. Swaysland for preservation:—Richard's pipit on the 9th of October; two examples of Richardson's skua on the 7th and 14th of October: all obtained near Brighton: a spotted crake, at Pevensey, on the 15th of October.—*T. J. Monk; Mountfield House, Lewes, October 22, 1867.*

Spotted Crake on Longridge.—I saw to-day, in the possession of Mr. W. Naylor, of Whalley, a spotted crake (*Crex porzana*). This specimen, a female, was shot on Longridge, Lancashire, on the 17th of October. The spotted crake is a rare visitant to this part of the country.—*H. W. Feilden; Pleasington, Blackburn, Lancashire, October, 31, 1867.*

Spoonbill on Northam Burrows and Black Redstart at Barnstaple.—I beg to record the occurrence of a specimen of the white spoonbill in North Devon. It was shot one day last week on the Northam Burrows, near Bideford. I saw it in the shop of Mr. Rowe, gunsmith, of Barnstaple. As the bird had no occipital plumes I judged it to be a young bird of the year. A black redstart has been frequenting our premises here for some days. It appears occasionally on the top of the house, and sometimes in the garden, and is every now and then noticed flitting before the windows on the look out for flies, after the manner of a flycatcher or wagtail.—*Murray A. Mathew; Barnstaple, November 8, 1867.*

Surf Scoter and Firecrested Regulus (Birds of the Year) at Scilly.—The packet has brought over the above specimens for preservation to Mr. Vingoe. The surf scoter shows its character in the form of the bill, which is very decided when compared with the others. There is another character, apparently specific, which is well shown in Yarrell's figure, and that is the extension of the frontal feathers half an inch down the centre of the ridge of the upper mandible: the other two species have not this character. I see that the description of the young surf scoter is very meagrely given by our authors: this specimen has a very well-defined white spot between the eye and the bill, and a similar one just behind the eye; the upper part of the head is of a very deep brown, almost black by lamp-light. The other bird is, without doubt, an immature firecrest from the well-defined white mark over the eye, which the goldcrest never has.—*Edward Hearle Rodd; Penzance, October 28, 1867.*

Arctic Tern near Gravesend.—On the 3rd of October, whilst our yacht was brought up in the Lower Hope, I had the good fortune to obtain a fine specimen of this tern, a young male in immature plumage. It was flying at the time in company with four or five others of the common variety. I had seen them playing about the yacht for more than half an hour before they came within shot.—*A. H. Snee; 7, Finsbury Circus.*

Skua on the Thames.—On the same day (October 3) I saw two specimens of the common skua; the first just opposite Greenhithe, the other by the Chapman Light; the latter when observed was chasing a common gull, which it soon

compelled to disgorge its food. Although I have been sailing on the Thames the whole summer these are the only two skuas I have seen. Is it not very unusual for these birds to come so high up the river?—*A. H. Smee.*

Sandwich Tern at Whitby.—In the last week of August I had a fine male specimen of this tern given me by a friend, who had shot it on the beach between the harbour and Kettleness. At the time it came into my possession the breast still retained a decided rose-red tinge, which disappeared after a few days. Keble, the local bird-stuffer, informed me that he had never seen or heard of this species of tern occurring previously on the Yorkshire coast, although he had lived at Whitby for the last fifteen years, and most of the rare birds shot in the neighbourhood pass through his hands. When at Mr. Keble's house he was busily engaged in setting up a young specimen of the common seal, which had been shot on the sands close to the town.—*Id.*

"The Wide-awake Tern."—To what species do the terns of which Dr. Collingwood gives so interesting an account (*Zool. S.S.* 979) belong?—*Edward R. Alston; Stockbriggs, Lesmahagow, November 7, 1867.*

Little Gull at Flamborough Head, Iceland Gull in Orkney, and Tithys Redstart at Minehead.—On the 23rd of October a little gull was killed near Flamborough Head. On the 29th of October an Iceland gull, sent in the flesh from the Orkneys, was found to contain several grains of barley in the stomach, no other remains of food being perceptible. On the 31st of October I saw a male *Tithys* redstart in a small garden near the beach at Minehead, where it remained sitting on a low apple-tree till driven away by another bird, which seemed to me to be a house sparrow. I visited the locality two or three times afterwards, but could see no more of the redstart.—*J. H. Gurney; November 6, 1867.*

Enormous Lobster.—I have just taken a lobster (*Homarus vulgaris*) three feet long, which incredible statement I explain in this way: it measured one foot six inches from rostrum to tail, over all, and its anterior pair of legs were each one foot six inches long. It measured one foot two inches round the carapace; the large claw was ten inches in circumference and the smaller one seven inches. Its weight was a trifle over nine pounds. I have seen a lobster with a larger claw, but never altogether so large a specimen.—*Thomas Cornish; Penzance, September 21, 1867.*

Gibbs' Spider Crab at Penzance.—I note the occurrence of Gibbs' spider crab (*Pisa Gibbsii*) here on Thursday, the 3rd instant. The specimen is small, and of a dirty white colour. It was caught in about eight fathoms water.—*Id.; October 5, 1867.*

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

November 4, 1867.—Professor WESTWOOD, Vice-President, in the chair.

Additions to the Library.

The following donations were announced, and thanks voted to the donors:—
'Transactions of the Linnean Society,' Vol. xxv. part 3, and Index to Vols. i.—xxv.;

'Journal of the Linnean Society,' Zoology, Vol. ix. No. 36; presented by the Society. 'Proceedings of the Zoological Society,' 1866 and 1867, Part 1; by the Society. 'Journal of the Agricultural Society,' 2nd series, Vol. iii. Part 2; by the Society. 'Annales de la Société Linnéenne de Lyon,' new series, Vol. xiv.; by the Society. 'Annales de la Société d'Agriculture, &c., de Lyon,' 3rd series, Vols. ix. and x.; by the Society. 'Mémoires de l'Académie des Sciences, &c., de Lyon,' classe des Sciences, Vols. xiv. and xv.; by the Academy. 'Bulletin de la Société des Naturalistes de Moscou,' 1866, Nos. 3 and 4; by the Society. 'Mémoires de la Société de Physique, &c., de Genève,' Vol. xix. Part 1; by the Society. 'Mémoires de l'Académie des Sciences, &c., de Belgique,' Vol. xxxvi., and 'Bulletins,' 2nd series, Vols. xxii. and xxiii.; by the Academy. 'Schriften der physikalisch-ökonomischen Gesellschaft zu Königsberg,' Vols. vi. and vii.; by the Society. 'Stettiner Entomologische Zeitung,' 1867, Nos. 7—12; by the Entomological Society of Stettin. 'Memoirs read before the Boston Society of Natural History; being a new series of the Boston Journal of Natural History,' Vol. i. Parts 1 and 2; and 'Proceedings,' Vol. x. and Vol. xi. sheets 1—6; by the Society. 'Annals of the Lyceum of Natural History of New York,' Vol. viii. Nos. 11—14; by the Lyceum. 'Proceedings of the Essex Institute,' Vol. iv., Vol. v. Nos. 1 and 2; by the Institute. 'Proceedings of the California Academy of Natural Sciences,' Vol. iii. Part 3; by the Academy. 'An Inquiry into the Zoological Relations of the first-discovered Traces of fossil Neuropterous Insects in North America; with Remarks on the difference of Structure in the Wings of living Neuroptera,' by S. H. Scudder; by the Author. 'View of the Lepidopterous Fauna of Labrador,' and 'Revision of the Fossorial Hymenoptera of North America, I. Crabronidæ and Nyssonidæ,' by A. S. Packard; by the Author. 'Notes on the Lepidoptera of America,' No. 1, and 'Descriptions of American Lepidoptera,' No. 1, by A. R. Grote and C. T. Robinson; by the Authors. 'Neuroptera and Orthoptera of the Province of Moscow' (in Russian), by B. Oulianine; by the Author. Sepp's 'Nederlandsche Insecten,' 2nd series, Vol. ii. Nos. 9—16; by M. Snellen van Vollenhoven. 'Bidrag till Reduviidernas Kännedom,' by C. Stål; by the Author. Hewitson's 'Exotic Butterflies,' Part 64; by W. W. Saunders, Esq. 'Entomological Papers, 1862—1866,' by the Rev. Hamlet Clark; by the (deceased) Author. 'Catalogue of Longicorn Coleoptera collected in the Island of Penang by James Lamb, Esq.,' Part 2, and 'Diagnostic Characters of some new Genera and Species of Prionidæ,' by F. P. Pascoe; by the Author. 'Apterous Lepidoptera,' by J. Jenner Weir; by the Author. 'Illustrated Natural History of British Moths,' by Edward Newman, Nos. 6—11; by the Author. 'The Zoologist,' July to November; by the Editor. 'The Entomologist's Monthly Magazine,' August to November; by the Editors.

The following additions by purchase were also announced:—"Genera des Coléoptères d'Europe," livr. 132—135. Gerstäcker's 'Bericht der Entomologie, 1863 und 1864,' Part 2.

Exhibitions, &c.

Mr. M'Lachlan exhibited a species of Mantispidæ from Bahia; he believed it to be the female of *Trichoscelia notha*, from the male of which, described and figured by Erichson, it differed in being half as large again, in having the anterior femora unarmed, the abdomen ochreous beneath, and provided with a long flexile ovipositor; in all other

characters it agreed with Erichson's insect. The species was especially remarkable by the lobate dorsal ridge of the abdomen, and by the greatly dilated and compressed posterior tibiæ, resembling the pollen-bearing organs of a *Bombus*.

Mr. M'Lachlan exhibited, on behalf of Mr. B. Cooke, two examples of gynandromorphism. The first, a sawfly, *Dolerus madidus* of Klug, the left-hand side presenting male characters, the right side female characters. The second, a Trichopterous insect, *Limnephilus striola* of Kolenati, in which the palpus, antenna and wing on the right-hand side were of the male form and on the left side of female form, whilst the abdomen was wholly female; this specimen was captured by Mr. Cooke near Manchester.

Mr. M'Lachlan also exhibited two monstrosities, both sawflies, which he had received from Prof. Zeller. One was an example of the rare European species, *Hylo toma fasciata* of St. Fargeau, in which the left posterior tibia was two-jointed, the second joint being greatly dilated. The other, a specimen of *Tenthredo scalaris* of Klug, with five wings, three on the right side, the anterior and posterior being perfectly normal, whilst the intermediate one combined the neural characters of both.

Mr. Bond exhibited three recent additions to the list of British Lepidoptera, namely, *Psyche crassiorella*, *Bruand*, *Grapholitha ravulana*, H.-S. (exhibited at a previous Meeting, but then unnamed), and *Coccyx vernana*, *Knaggs* (Ent. Mo. Mag. vol. iv. p. 122).

Mr. T. W. Wood (who was present as a visitor) exhibited a number of pupæ of *Papilio Machaon*, *Pieris Brassicæ* and *P. Rapæ*, exhibiting various shades of colour corresponding with the colours of the surfaces to which they were attached; and read the following

Remarks on the Coloration of Chrysalides.

"All Lepidopterists are probably aware of the very great variability in the colouring of the chrysalides of butterflies, and I am able to state, as the result of some years of observation, that their colours are more or less derived from the objects in their immediate vicinity. It is obvious that this assimilation of their colours to their surroundings is of great use to them, tending to their concealment and consequent immunity from the attacks of enemies during their period of exposure in a helpless state. The specimens of chrysalides on surfaces of different colours which I now exhibit are, I trust, sufficient to convince you of the truth of this statement. I find, as the result of my experiments, that the skin of the chrysalis is photographically sensitive for a few hours only after the caterpillar's skin has been shed, and, as might be expected, by putting the specimens in the sunshine at the time of changing, and surrounding them as much as possible with any desired colour, the most successful results have been obtained. Under these conditions the specific markings are almost entirely overpowered if necessary to the assimilation of colour; and these markings are, in fact, entirely overpowered in the exhibited green varieties of *Papilio Machaon* and *Pieris Rapæ*. I have not had an opportunity of seeing the former species in its natural haunts, but the latter I have observed, and have found the green variety of the chrysalis on a green leaf, and on a door which was painted green (specimen shown). There are also before you green specimens of *Pieris Brassicæ* which were under a vine on the side of a house which was of a stone-colour, with many others taken from the adjoining side of the same house, where there was no vine to affect their colour, but only the

somewhat dirty stone-coloured surface; I particularly noticed that there were no green specimens to be seen on this side, although their number was very considerable, and they were attached at various heights, some very near the ground, and others at the house-top under the projecting eaves.

“Some of the darkest specimens shown on blackened surfaces were exposed to a very subdued light in a dark corner, and the detached ones so strongly suffused with black were taken from a tarred fence. One of the chrysalides of *Pieris Brassicæ* on a white surface, now exhibited, is almost an albino. I also exhibit green, reddish and dusky chrysalides on surfaces of similar tints. Specimens kept in the dark would be interesting; I have one of *P. Brassicæ* which was placed on whitish wadding in a box from which light was excluded, and it is of a light colour, although possessing all the specific markings, but from this solitary example no conclusion can be drawn. Mr. A. G. Butler has informed me that he also has made some experiments with chrysalides of *Pieris Rapæ*, and has procured a reddish tinge by means of a red surface, besides other colours. The gilded chrysalides deserve mention here; those of *Vanessa Urticæ* I have hardly ever found except when concealed by nettle-leaves; those on fences, walls, tree-trunks, &c., being of similar colours to those objects, and mottled more or less. The fine chrysalis of *Vanessa Polychloros*, when amongst foliage, is coloured like a withered elm-leaf; I have not unfrequently found it of a light reddish brown, with a cluster of metallic silver (not golden) spots on the back at the juncture of the thorax with the abdomen: this colouring also gives place to mottled grayish when the individual is on a wall or other object. The metallic appearance is probably of service in giving the insects an uneatable look, and is not necessarily connected with the possession of *Ichneumon* in their interiors, as one or two of my entomological friends think; for I have had very fine butterflies out of very metallic chrysalides; indeed I consider this to be the normal colouring, it being the most beautiful by far. I would venture to suggest another reason why the gilding, when amongst leaves, is of service in the way alluded to: it is this—that the *Vanessa* chrysalis is quite loosely attached, hanging only by the tail, so that, even if it could assume the green colour by which it is surrounded, it would be rather dangerous to it than otherwise, for it would then appear to birds very much like a green caterpillar swinging in the air, but as it is it looks more like a piece of gold or brass than anything else, and birds probably do not think of touching it. There are doubtless many instances of the absence of variability in chrysalides, but I think they would all be found to be mimics of some disliked or dangerous insect. The chrysalis of *Aporia Cratægi* is very conspicuous and not very variable, but I have been much struck by its strong resemblance to the caterpillar of the currant-bush moth (*Abraxas grossulariata*), as both are speckled with black on a whitish ground, and the moth caterpillar is extremely abundant in the same localities, and is probably disliked by birds. The pupa of the moth is very remarkably coloured with yellow bands on black, giving it a waspy appearance, and I recollect being afraid when a child to touch it, thinking it would sting. I feel convinced that by the proper use of gilded surfaces the gilded chrysalides of *Vanessa*, and perhaps of other genera, would be obtained, and I hope to be able to try the experiment next season; also to obtain colours with coloured glass, as it is probable that the strongest effects would be obtained by that means. There can be no doubt that disguise will be found to be carried to as great a length in chrysalides of butterflies as in any other class or stage of insect life, as their evading observation, and consequent security during a

considerable portion of their lives, must depend *solely* upon this power which they unconsciously possess."

Mr. A. G. Butler (who was present as a visitor) stated that he had obtained a red or rosy chrysalis of *Pieris Rapæ*, which had undergone its transformation in a piece of scarlet cloth; and pupæ upon glass were generally of a pale slate-colour.

Mr. J. Jenner Weir said that, whatever might be the explanation, he could speak to the fact that metallic chrysalides were for some reason or other obnoxious to birds and free from their attacks.

Mr. Bond combatted Mr. Wood's theory; he had had thousands of pupæ of *Papilio Machaon*, and had often had the brown variety of pupa on a green ground-colour, whilst in some seasons he obtained no brown specimens at all: as regards *Pieris Rapæ*, he had noticed that the pupæ of the second brood were generally rather paler than the first brood; but in the same green-house, the doors and wood-work of which were painted white, he had found chrysalides of all the exhibited colours, many of them quite as dark as those shown by Mr. Wood on black surfaces; on the same wall, built of particularly red bricks, he had found all the colours except the red; on the same twig of the common garden rocket, subject to precisely the same external influences, he had often noticed three or four pupæ of *Anthocharis Cardamines*, and at times the twig would produce red, green and white varieties, while at other times all the pupæ were of the same colour.

Papers read.

The following papers were read:—

"A Revision of the Australian Buprestidæ described by the late Rev. F. W. Hope," by Mr. Edward Saunders.

"Descriptions of some new Species of Diurnal Lepidoptera," by Mr. W. C. Hewitson.

"A Monograph of the Genus *Thais* of the Family Papilionidæ," by the Rev. Douglas C. Timins. The following seven species were enumerated and figures of each exhibited:—

"1. *Thais Cassandra* (Boisd. Icon. pl. iii. fig. 1, 2; Hübn. Pap. fig. 910—913. *T. Hypsipyle*, Godt. Pap. Fr. ii. pl. 2 C, fig. 1, 2; larva figured by Boisduval Rambert et Graslin, Coll. Icon. Chenilles Papil. pl. ii. fig. 1—3). The larva feeds on several species of *Aristolochia*: it varies much in colour, but is generally pale reddish, spotted with black. The pupa state lasts from November to March; the pupa is reddish brown, the wing-cases yellowish. I have found this species at Cannes and Hyères: it is of very short duration and very sluggish, frequenting marshy grounds, where it flies lazily from flower to flower, settling with expanded wings. Near Cannes it is very common in some marshy meadows on the road to Auribeau; at Hyères it is comparatively rare; near Horace Vernet's chateau, about ten miles from Hyères, it is plentiful on a patch of marshy ground. This species usually appears on the wing in March, about the 15th, and after a fortnight few good specimens are to be seen. The time of appearance, however, varies much: in forward seasons it appears in February, but in 1864 and 1865 it was not on the wing until April. Slight varieties occur, the black markings on the upper side of the anterior wings being more or less diffused, and sometimes the ground-colour of these wings is almost white. This was the case in some specimens which I reared at Oxford in 1861, from larvæ collected at Hyères in

1860. I have reared *Cassandra* in December by placing the pupæ in a very warm situation; the perfect insects, however, offered no variation from the ordinary type.

2. *T. Hypsipyle*. This species is closely allied to *Cassandra*; indeed Boisduval's opinion was that the two were merely local varieties of one species. This, however, is not the case, because *Hypsipyle* and *Cassandra* occur in the same localities, though at different times. *Hypsipyle* is generally (not always) paler than *Cassandra*, at least in the female; the black markings are less diffused; there is in the female a crimson dot upon the third black marginal band counting from the outer edge of the anterior wings; the second crimson spot on the hind wings is absent in the female. The antennæ are brown with a blackish club in both sexes of *Hypsipyle*, but black throughout in *Cassandra*. This species may be considered, I think, identical with the *Thais* (*Papilio*) *Polixena* of Oechsenheimer. Two constant varieties are described by Boisduval; his *var. A* differs from the type by the narrow costal bands of the anterior wings, the second of these bands only being of the usual breadth: this *var.* is said to occur in Calabria. The *var. B* is described as being of a deep ochre-yellow and as possessing three or four red points on the fifth costal band: this variety has been found commonly in the Morea, and may, I think, possibly be a distinct species. This species is further distinguishable from *Cassandra* by its yellow larva, with black dorsal band, six rows of spines, yellowish red bordered with black, and (according to Hübner) a lateral series of black points, forming a triangle. The pupa is not unlike that of *Cassandra* in form, but is grayish brown in colour. The larva of *Hypsipyle* is found about August, feeding on *Aristolochia rotunda* and (as Boisduval says) on *A. Clematidis* also. The perfect insect flies over marshy places in April. It thus appears later than *Cassandra*: its flight is sluggish. I have found both the type and the *var. A* at Cannes.

3. *T. Caucasica*. This is said to abound near Smyrna in April and May. The larva and pupa seem to be altogether unknown.

4. *T. Cerisyi*. This species is easily distinguishable by the long tails on the hind wings. The larva and pupa seem to be unknown. This species occurs near Smyrna, and also in some of the islands of the Grecian Archipelago: it appears on the wing in April and May, and is of short duration.

5. *T. Henrietta* (new species). Expands $2\frac{1}{2}$ inches. Antennæ and palpi black; thorax black, spotted with yellow. Abdomen also spotted with yellow. Wings deep golden yellow; fore wings with the base black, then a red costal spot bordered with black, then a black costal band, then another broad crimson spot edged with black, then a black spot, then two small red spots, then a row of black crescents, and a second row of crescents reaching to the edge of the wing. Hind wings have the base black, the disk marked with crimson and black, the nervures black, a crimson spot on the upper margin and a row of five large crimson spots bordered with black, and a row of yellow crescents deeply edged with black. The fringe of all the wings is dark golden yellow. A single specimen of this beautiful insect, taken near Smyrna, was in the cabinet of the late M. Meissonier, of Hyères: that gentleman informed me that it was a new and undescribed species: he wished me to describe and figure it, and lent me the specimen for that purpose shortly before his death.

6. *T. Medecicastia* (*Papilio Rumina*, Hübn. tab. 354—395; *P. Rumina-australis*, Esper; *La Proserpine*, Ernst, Pap. d'Europe). The larva lives on several species of

Aristolochia: it is usually of a brownish yellow colour, with many longitudinal black lines, and six rows of spines, orange-coloured. The pupa is not unlike that of *Cassandra*. This species passes the winter in the pupa state, and appears on the wing in May. I have found it near Grasse in May, also, not uncommonly, near Hyères. Its flight is not so sluggish as that of *Cassandra*: it is partial to localities where the beautiful rose-coloured *Cistus* (*Helianthemum album*) grows. There is one hill in particular near Hyères upon which this plant is found in remarkable profusion, and here *Medecicasta* may be seen in some plenty. I have observed that this insect seldom flies after 2 or 3 P.M., while *Cassandra* is partial to the afternoon sunshine, and may be seen on the wing until 4 P.M. or even later. There is a variety of this species figured, under the name of *Thais Honnoratii*, by Boisduval (Spec. Gen. des Lépid. plate 1 B, fig. 4), which appears only to be found in the neighbourhood of Digne: it is smaller than the type; the crimson spots are much enlarged upon the lower wings, and upon the upper wings are much more numerous (and also larger) than in the type; the second and third costal bands are very small. This variety is exceedingly rare, and specimens fetch about £1 each in the Paris dealers' shops; I have been told, however, by an old French entomologist, that they have been known to fabricate this variety, by selecting small individuals of *Medecicasta* and dexterously colouring them by means of crimson scales borrowed from other specimens, the black scales of the second and third costal bands being neatly removed and their place supplied by yellow scales. I have followed most authors in giving *Honnoratii* as a variety of *Medecicasta*: if, however, this be the case, it is rather curious that it should only have occurred in one locality out of several in which *Medecicasta* abounds. The statement, moreover, that it has been reared from a larva identical with that of *Medecicasta* must be, I think, received with caution. I knew a French collector who had at one time two thousand arvæ of *Medecicasta*, and not one produced *Honnoratii*.

7. *T. Rumina*. This species is pretty closely allied to the preceding. It is, however, somewhat smaller, and frequently of a darker yellow, but this difference is by no means constant. The best distinctive marks perhaps are as follows:—a white subdiaphanous spot near the apex of the fore wings (occasionally absent), the absence of a crimson patch on the lower edge of the fore wings, and the much greater extension of the black marks near the outer edge. The outline of the fore wings is also different from that of *Medecicasta*, the curve of the costa especially. The larvæ of *Rumina* are grayish, with small longitudinal black markings and six rows of short reddish spines. The pupa is ash-coloured, in form similar to that of *Cassandra*. This species is chiefly found in Southern Spain, Portugal and North Africa: it has, however, occurred (very rarely) near Hyères, and it is said near Cannes also. April and May seem to be the months for its appearance in the perfect state. It is subject to considerable variation, and I am not certain whether the specimens from Cannes are not in reality varieties of *Medecicasta*."

New Part of 'Transactions.'

A new part of the 'Transactions' (third series, vol. iv. part 2), published in August, being the fourth part issued for 1867, and containing a continuation of Mr. Baly's "Phytophaga Malayana," was on the table.—*J. W. D.*

